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THE JOURNAL
OF THE
ASIATIC SOCIETY
OF
BENGAL.

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VOL. IX.

PART II.—JULY TO DECEMBER, 1840.

NEW SERIES.

“ It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society in Calcutta ; it will languish, if such communications shall be long intermitted ; and will die away if they shall entirely cease.”—SIR WM. JONES.

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The Geographical notice of Seistan had been for some time in print, when I learned the death of its author, who was killed by a shot from the Fort of Tootumdurrah in the Kohat, north of Cabul, during the attack on that place under Sir R. Sale. Capt. CONOLLY was, as a member of our Society, energetic, and indefatigable in research, not only as regards the study of Indian antiquities, but with respect to all subjects coming under his observation, whence he conceived himself capable of deriving and supplying useful information. The Society will, I am sure, regret the loss of one of their body, whose merits, as an officer, are worthily noted in the annexed Extract from a letter to Major General Sir Willoughby Cotton, G.C.B. dated 26th October, 1840, which has been most kindly supplied at my request from the Political Secretariat Office.

“The Governor General in Council has learned with much regret the death of Captain EDWARD CONOLLY of the 6th Light Cavalry, Commandant of the Escort of the Envoy and Minister, whose zeal and spirit placed him as a volunteer under the immediate fire of the place. The service has, by this casualty, been deprived of an active and enterprising officer, whose energy and intelligence, as exhibited on every opportunity afforded for their exertion, gave promise of distinction to himself, and advantage to the Government he served.”

Putting private feelings aside, I could not, as editing this Journal, refrain from recording the loss which it has sustained in one of its most zealous and efficient contributors, who, though prematurely cut off, died at any rate a soldier's death, and in his duty.



JOURNAL

OF THE

ASIATIC SOCIETY.

*Points in the History of the Greek, and Indo-Scythian Kings in Bactria, Cabul, and India, as illustrated by decyphering the ancient legends on their coins. By CHRISTIAN LASSEN, Bonn, 1838.*¹

Character of the Alphabet.

The rule for reading the Alphabet is the Semitic, and this fact is the more remarkable, as the Indian characters of the immediate neighbourhood, as well as those occurring upon Greek coins, coeval with the most ancient coins on which the Cabulian characters occur, have never assumed this direction in all the varieties which the Indian alphabet has gone through within India and out of its confines.

The arrow-headed inscriptions too have the same direction with the Indian, and though at least one variety of them does not express the *a*, following consonants, yet it has not, as the characters of the coins have, signs of the shortened vowels *i* and *u*.

On the other hand, there is evidently in the legends a certain approximation to the Indian system of vowel-writing, not especially by the fact, that *i* and perhaps also *u*, even when short, are not denoted by marks on the consonants, nor by the other similarity, that they are not represented, even when long (with *u* however this is mere conjecture) by the corresponding quiescent semivowels *j* and *v*; for the first may occur in

¹ Continued from p. 488. vol. ix.

Semitic alphabets, the latter may be omitted in them, especially if they be applied to a foreign language; but this approximation of the vowel system is made remarkable by the peculiarity, that *a* is not treated in the same manner with *i*, but is considered inherent as in Indian languages. Whenever any Semitic language expresses the short vowels by smaller signs, it does so with *a* as well as with *i* and *u*: whenever it denotes the long vowels by quiescent consonants, similar to vowels, it applies for this purpose *ṣ* as well as *ʾ* and *ṽ*. But all Indian alphabets represent, as our coins do, *A*, *I*, *U*, by their own signs only as initials to syllables, but never *A*, when following a consonant, and the other vowels only by abbreviations.

The diphthongs, at least *ô*, do not follow the Indian system, according to which *ते ते* *te, tai*, *तो, to*, as well as *तु tu*, are written by abbreviated signs, they do not follow a Semitic system; but the diphthongs are placed in the line with the other letters, and *ô* has in the writing no reference to *u*; *ê* has it not to *ee*; while instances of the uncontracted diphthongs *âi* and *âu* are wanting. The instance of Eukratides can decide nothing as to the system of orthography peculiar to the language.

As the diphthongs are written in this language, so were all the vowels in Zend; but that language distinguishes between long and short vowels, though the former are but amplifications of the latter.

Now supposing that the characters on the coins were a Semitic alphabet applied to an Indo-Iranian dialect, the shapes of the consonants, and the initial vowels, might be considered as of Semitic origin, the principle for the medial vowels would have been borrowed from the Indian system of orthography, while an independent principle was invented for the diphthongs; and if the orthography of the Zendic language were likewise of Semitic origin, the principle adopted on the legends for only *ô*, (and *ê*) would have been extended in this language to all vowels.

This conjecture embraces the postulate, that at the period when the characters on the coins were introduced, the Indian alphabet had already completed the system upon which its peculiar mode of representing the vowels is founded.

This supposition may, I think, be proved correct.

Let us first of all dismiss any consideration of the Semitic origin of both alphabets, and look to the reference they have one to another. If in the one, the system of vowels be of Indian origin, and in the other original (and peculiar to the language,) as above supposed, there can be no point of comparison. But with regard to the diphthong ô, it is worth remarking, that P, ô, has the form ڤ on later coins, but slightly differing from ڤ, and hence it would appear as if the Zendic alphabet had borrowed this ô from the alphabet on the coins. This, however, does not hold good with ê.

By comparing the consonants, we find resemblances perhaps only between r and w, (not v, of the Zend alphabet), and n, in which, however, the similarity is very obvious, though we in fact are comparing two extreme points only, viz. the characters on the coins in their most ancient form, and the Zendic character of wholly modern manuscripts. With other letters we only require a common medium of comparison to ascertain their relation, as for instance with m, dh, and others.

I do not propose to carry this comparison further, which to afford satisfactory evidence, would require us to obtain in the first instance the characters of the coins in their latest shapes; and would also necessitate us to point out in the Zendic alphabet, what characters were subjected to a change of shape, to which the nasals are especially liable. Lastly, it would not be sufficient to confine our comparison to these two alphabets; all other alphabets must be similarly considered, which in a geographical and historical point of view are included in the same circle as these, viz. the Pehlvi characters of the books of the Parsees, so intimately connected with the Zendic character, as well as the various characters of the Sassanian monuments. All of them are closely connected, first, in a geographical point of view, as they are the native tongues in the countries west of the Indus, and east of the Euphrates, viz., in Iran, probably so called; and secondly, in an historical point of view, as they came into use in the period intervening between Alexander the Great and the invasion of the Mahomedans.

Without at all deciding on the time when the Zendic

works were first composed, it is certainly evident, that the characters of the coins, appearing before the dominion of the Sassanians, were the most ancient of the alphabets of Central Iran.

The characters on the coins are therefore of special importance with regard to their relations to Semitic alphabets, before proposed as a mere conjecture, and if we do consider that it was during the dominion of the Seleucides, and their successors, in use in Bactria and Parthia, we must look for the model upon which they are formed, in the capitals of the Seleucidian power, if their origin from the west be admitted. The comparison must consequently specially include all that may be most likely to afford us an idea of the Syrian alphabet, as it was in use under the Seleucides, such as the inscriptions of Palmyra, though the most ancient of them is nearly a century and a half later than the characters on the coins.

These conjectures pretend to no more authority than is implied in them as mere suggestions, and they must not hinder us from determining more exactly the alphabet on the coins in a geographical and chronological point of view.

Its geographical limits are connected with the extent of the Greco-Bactrian and Indo-Scythian power southward from the Indian Caucasus. None of the Greek kings who reigned in Bactria only has made use of this alphabet on his coins, and even of those who have adopted them, *Eukratides* perhaps alone possessed territories in Bactria, as well as southward from the Caucasus.

To this we must add the following : the Kanerkis, who, while passing towards India, must have lingered longer in Bactria than other Scythians, because they appropriated to themselves in preference Bactro-Persian gods, have, like the Greek purely Bactrian kings, never adopted this alphabet.

This being so, we cannot help supposing, that the characters of the coins were not indigenous to Bactria, that is to say, that they existed to the south only, and not to the north of the Caucasus.*

* A short inscription, a word from Bamian, which Mr. Masson had read according to their alphabet, is quite uncertain, As. T. v. 188.

They are discovered to the east in topes, near Jelalabad, and between the Indus and Hydaspes in Manikyâla, but further eastward than this, they have not been met with. We also do not know yet whether they extend to Kandahar, in a more westerly direction. To the north of the Cabul river those characters are met with in Kapurdigarhi, in the ancient Peuke-laotis. *As. Trans.* v. Pl. xxviii.

As the matter therefore rests at present, we may assert, that these characters were geographically limited to the country about the Cabul river, and we will term the characters on the coins **THE CABULIAN ALPHABET**.

Menandros, or Eukratides, is the first who made use of the alphabet. That we may not pretend to fix the time more exactly than the facts admit, we shall assign their first occurrence to the years 180—170 (B. C.) It existed in use, as has been already noticed, till within the Sassanian era, and is therefore coeval with the character found further west on the monuments and coins of the Sassanides.

The latest occurrence of these characters is perhaps found in the report of Hiuan T'sang, when he says, that in *Thsaokiutho* other characters than the Indian were in use; now there, in the country to which our alphabet was indigenous, about the Pan-jhir, a tributary of the Cabul, it appears hardly possible to allude to any other characters than to these.

But it was, on the other hand, also cotemporary with the Indian alphabet, which appears as early upon the coins of Agathokles and Pantaleon, and proves entirely different, both by its opposite mode of writing and by the shape of its characters. This Indian alphabet occurs immediately before this date on the columns of Azôka (260—219. B. C.)* and continues under the Indian kings of the Maurja dynasty.† As now the empire of Azôka extended to the Indian Caucasus (I shall hereafter recur to this) and as it would appear preposterous that he should have introduced an alphabet foreign to him upon the *stupas* which he is said to have built there,‡ as on the contrary the

* *Zeitschrift fuer die Kunde des Morgenlander*, *As. Trans.* vi. 791.

† *As. Trans.* vi. 678.

‡ *Foe K.* p. 395.

Cabulian characters on the coins disappear in western India, together with the dominion of the foreigners, the following conclusions seem still to result. First, the Cabulian characters on the coins occur in the Punjab, not because a native alphabet was unknown there, but in consequence of the foreign dominion, which transplanted thither from Cabul, carried on its coins along with it, to the east, its peculiar characters. Secondly, it is doubtful, whether the dominion of the foreigners descending from the Caucasus, found in western Cabulistan, this alphabet alone in use, or employed in common with an Indian one. To us it appears probable, from the foregoing remarks, that these foreigners did not import the alphabet with them from Bactria. At the very place where the intercourse of trade brought into contact the east and the west, India and Iran, it was most easily possible that an alphabet, introduced from the west, such as we must admit the alphabet on the coins on our previous investigation to be, may have been in use in common with Indian letters, unless we be disposed to attribute to the Paropamisades the invention of an alphabet of their own. Whether there were indeed an Indian alphabet there, we shall not question ; the coins of Agathokles and Pantaleon, however, prove, that an Indian alphabet, if not in western Cabulistan, prevailed at least more to the eastward ; had this not been the case, why should they have used Indian characters ? But these characters disappear with those kings, and retreat proportionately with the extension of the dominion of Menandros to the eastward.

I do not here extend these remarks, as the era and the abode of Agathokles and Pantaleon are still uncertain ; I shall only add, that I can place them neither with Mr. Raoul-Rochette in Bactria at the head of all those princes, nor with Mr. K. O. Mueller remove them to India Proper.

But the following fact will prove, how correct it is to consider the characters on the coins as foreign to India. Upon the ancient Buddhist coins, discovered* in the ruins of the town Bchat on the banks of the Jumna, there occurs the title 𑀧𑀺𑀢𑀺

* As. Trans. 111. 227.

Mahārājō, in Cabulian characters, and on the reverse the same words in the old Indian characters of the Agathokles coins, and the Azōka columns.* By this fact it is quite evident, that the Cabulian alphabet on the coins was not in use in India Proper, and this at the period when the most ancient form of the Devanagari, which we as yet know, was still prevailing. Those Buddhist kings whom we otherwise do not know, must have employed the Cabulian characters only for the use of their subjects on the banks of the Indus.

It does not follow from the foregoing remarks, that the characters are not more ancient than the coins upon which they occur. If no coins were previously struck there, the characters could not indeed be used for numismatic purposes, but they would be in the transactions of other business. When Pânini (IV. I. 49) informs us, that by the affix *ani* to the word *Javana*, the writing peculiar to this nation *Javanani* यवनानां लिपिः यवनानी is represented, he perhaps points at the Cabulian alphabet. According to Indian tradition, Pânini is placed immediately before Chandragupta, (therefore during the reign of Alexander the Great); it is more certain, however, that his native country was the ancient Gandhara, where he would be certainly enabled to become familiar with the characters of the *Javanas* of that country.

I have taken it for granted in the course of the preceding remarks, that the Indians were already possessed of an alphabet of their own, at the period when the Greek kings first extended their dominion to the south of the Caucasus; some of my inferences are mainly founded upon this view.

* I owe this important fact to communications Mr. Prinsep made me by letter. The proper names are not yet read, as far as I know, upon the coins of this kind, with duplicate legends; those that are read, are only in old Indian characters and Indian. *As. Trans.* VI. 464. As those others are ancient, I presume, that on these very coins, monuments of the dynasty of the Buddhist Khanishka will be brought to light; for he must have reigned a short time before or after the commencement of our era; he ruled Gandhara, Kazmira, and the country Keenaputi 500 lis to the eastward from Vipâzâ, (*Foe K.* p. 381). This lies in the nearest neighbourhood of Behat, and the use of the two-fold characters for the same language is exactly suited to these countries.

But now I perceive, that an erudite person whose views must be of great weight with all those that have occupied themselves with his writings, draws from the newest inquiries into Indian coins, the conclusion, that the Indian alphabet is derived from the Grecian.

Mr. Prinsep in decyphering these Indian characters, written in a peculiar manner on the coins of Saurashtra, asserted, that the more ancient the Nagari, the more similar become the characters to the Grecian ones. Upon this he had grounded the conclusion,* that the most ancient Greek characters are but the Indian turned upside down.

Mr. Mueller, who did not of course require proof of the invalidity of this view, takes the converse of the assertion.† “If,” says he, “the relation of the ancient Nagari to the Greek alphabet is closer than can be explained by the common derivation of both from Phœnician language, we are forced into the conclusion, that the Greeks introduced this alphabet to the Indians, and that in consequence, the heaven-born alphabet of the Brahmins is not older than Alexander.”

Now this is no casual remark, such as sometimes occurs in a journal, and which we may put aside without notice, but it is, if not a view deliberately considered, still an opinion positively pronounced and hopefully cherished. He says (p. 249,) “We must, however, confess that our hopes as to the historical connexion between Indian and Grecian civilization, go far beyond this fact,” (that the Indians have borrowed their shapes of coins from the Indo-Scythians) “and extend over the whole history of art and letters.”

It is therefore a favourite opinion of this celebrated scholar, the correctness or incorrectness of which must be of vital importance in Indian antiquities. For if the Indians had no alphabet before Alexander, all the writings that we have hitherto considered the subject matter of as genuine sources for the knowledge of India from the most ancient days, were penned after Alexander’s time, or more correctly speaking, after the

* As. Trans. VI. p. 390.

† Goett. Gel. Anz. at other places, p. 252.

establishment of the dominion of the Bactrian kings in Cabul and on the Indus, as no sound critic can assign such an influence as consequent on Alexander's momentary sojourn in India.

Bayer had discovered from some Indian words, communicated to him, that a striking similarity obtained between the Greek and Indian numerals; hence he concluded, that the Indians had borrowed these words from the Greeks. The affinity was ingeniously discovered, while the inference not too bold, as he at the same time admitted, that the Indians possessed other and more ancient native numerals; none, however, will probably in our days earnestly undertake to refute Bayer's opinion; but in his time he could hardly draw any other conclusion from the reports at his disposal.

Mr. Mueller's conclusion, however, appears to me much bolder, and whatever species of criticism he may meet with from others, I for my part shall refute him in good earnest.

Supposing, there exists in very deed a similarity between the Greek and the Indian characters on the Saurashtra coins, as Mr. Prinsep has maintained; granting also, that they were imitated after Parthian and Indo-Scythian models, it will be asked, what inference can be hence derived? Certainly only this, that the characters on those coins are of Greek origin. Mr. Mueller* places a date to these coins, subsequent to the first century of our era; the age of the Indian alphabet cannot therefore be traced with certainty prior to this period.

Whether this similarity do exist, or not, is here wholly beside the question; I think it fallacious, but I shall here drop the subject.

Mr. Mueller will have it for granted, that the older the Indian characters are, according to his conjecture, the closer must be their similarity with the Greek.

Now he assigns himself the coins of Agathokles and Pantaleon to the year 200—160 B. C. Their coins, having exactly the same alphabet as employed but a short time before on Indian monuments, was undoubtedly the form, then adopted, of Brahminical Debnagari. This character has been now decyphered with full

* p. 248.

authenticity by Mr. Prinsep, as is the most ancient from the Indian characters hitherto discovered.

I shall here copy this alphabet, (and ask), whether the hopes, above alluded to, of tracing the sources of the Indian alphabet to the Greek, are likely to be much favoured by this discovery? I must strongly doubt it.

𑀀 a 𑀁 i 𑀂 u 𑀃 rī 𑀄 ê 𑀅 k 𑀆 kh 𑀇 g
 𑀈 k' 𑀉 k'h 𑀊 g' 𑀋 t' 𑀌 t'h 𑀍 d' 𑀎 d'h
 𑀏 t 𑀐 t'h 𑀑 d 𑀒 d' 𑀓 n 𑀔 p 𑀕 p'h 𑀖 b
 𑀗 b'h 𑀘 m 𑀙 j 𑀚 r 𑀛 l 𑀜 v 𑀝 s 𑀞 h

It may be added, that this alphabet had already the junctions of consonants, and the representative marks for shortened vowels, such as we find them to this day in the Indian orthography.

To prove the desired derivation of the Indian alphabet from the Greek, it will be necessary to point out, as existing between the era of Alexander the Great, and the grandson of Chandragupta, Azôka, a form of Indian characters, marking the progress of transition from the Greek alphabet to the Indian, above exhibited. Till this has been effected, we may be allowed to keep in store (as reserve artillery), the remaining arguments in favour of the originality of the Indian alphabet, which are to be discovered in the grammatical system, in the history of the language, in the substance of the inscriptions, and, lastly, in the reports of Megasthenes and Nearchos.

The time has been, when every invention of the human mind must have passed from the East into Greece; but the philologists of classic antiquity would like to establish the converse of this view on every subject. The hope of advancing science is most laudable, but most fallacious, if cherished for a favourite system, since it impedes the judgment in forming clear and impartial conclusions. How otherwise could a man of so clear a mind, as is Mr. Mueller, fail to perceive, that he clung to a predilection, while neglecting the most important facts?

It seems to me, I confess, a pleasant accident, that this latest effort at Indian conquest, made by Greek philology, may be

refuted by the mere agency of a petty monument of Grecian art.

§ 13.

The Language.

That the language of the legends in the Cabulian character belongs to the widely extended family of the Arian languages, is so evident from the foregoing disquisition, as to render it unnecessary to dilate on the subject; a few words only on the latest coins of the Kadphises dynasty, constitute the only exception to this fact.

The language on the coins also remains at all periods unaltered; in the word *tādârô* alone is an alteration affected to *dhādhârô*, giving evidence of a later variety in pronunciation.

I do not include in this assertion the language of the Kanerki-coins; they refer to another dialect, on the position of which, as to local use, a conjecture can only be formed hereafter. From the discussions, as to the country to which this alphabet was indigenous, the natural inference ensues, that the language, expressed in these letters, may be assigned to the same country; all peculiarities hitherto discovered, as to the system of sounds in the language, tend to the same conclusion.

The language is not Zend, for this does not absorb the consonants; the Zend has *puthra*, not *putta*, and retains even on the Kanerki-coins, *athro*, *mithro*, *ardethro*; the language of the coins, on the contrary, reads, *Minadhô*, *Eikatidô*; Zend again retains n before t, but not the language on the coins; Zend does not exclusively express its nominative in the termination ô, and it alters an Indian H into Z, while the language of the coins has *mahatô*. Zend has no L, while with our language it is a favourite letter, as for instance, *prati* becomes *pati*, and even *pali*. A Zendic, or more correctly speaking, an Iranian affinity, appears only in the substitution of k (i. e., q or kv) for *sp* identical with *sv*. This fact, and the correspondence with the old Persian in omitting the nasal before dentals, are the only peculiarities which refer to Iran.

Other facts have been noticed, with regard to the language, as common to the Indian dialects of Prâcrit, viz. the absorption

of consonants, the alteration of hard into soft roots, and the l for t. The word *Dharma* has a decided relation to India, being all a doctrinal term, which cannot be declared as such with reference to Iran; again, *râjun* for *king*, and *gaja* for *victory*; *tâdârô* too is also Indian,—though we will not deny its also belonging to Zend. These indications lead us to a country, immediately bordering upon India, and the language of which, though not entirely Indian, and rather forming a transitional dialect in some respects between the Indian and Iranian languages, still did not very materially differ from an Indian dialect; in saying which, I allude to the language in daily use with the common people, and not to Sanscrit, which was then already, in all probability, the language of the learned castes, and of the great. The existence of the dialects of Prâcrit, as in common use with the people, is ascertained by their occurrence on the Buddhist monuments of this time; the Prâcrit, or what eventually is the same, the Pali, could not have been raised by the Buddhists to the dignity of a religious language, unless it had existed aforetime among the people. Now as about the period of the first of the Greco-Indian kings, Prâcrit was used on monuments in India itself, at least by the Buddhists, there is no occasion for wonder, if we meet with a popular dialect in Cabulistan, especially on coins: the Sanscrit would have only been in use there under a Brahminical influence.

The country of the language on the coins may therefore with certainty, I think, be looked for westerly from the Indus, and to the south of the Indian Caucasus; but it is very difficult to define its limit more exactly; for though we have already proved, that the influence of Indian dialects extends to the westward of the Indus, even to the Cabul river beyond Jelalabad, still it does hence not follow, that to the country west of that, the same language existed. It is true, we found also, that the Paropamisades were represented as being Indians, and a later notice extends the term *Indian* even to Arachosia;* but reports of only a little later date, have limited the influence of the

* Isidor. Charac. with Huds. p. 8.

Indian language to a point beyond Jelalabad. To arrive at a conclusion, would involve the necessity of acquaintance with the more minute peculiarities of those languages in their ancient condition.

Again, the existing relics of the ancient languages in these countries, admit the inference of no deduction. The Deggani language in Lamghan, as well as the spoken language of Kaferistan, may still be recognised as remnants of old Indian dialects, but we do not know them so well, as to be able to make use of them here. The language of the remaining ancient races of western Cabulistan, the Kohistan of the present day, is entirely unknown. We can therefore only say generally, that in one of those dialects the remnants of the ancient Cabulian language must exist, the oldest traces of which occur on the coins, but without being able to decide ourselves in favour of any particular dialect among them, as being the receptacle of those remains. I indeed know, that some have pretended to recognise the Afghans in eastern Cabul, even as early as Alexander's time; not so Mr. Elphinstone,* who rather proves their immigration into Cabul at a much later period; this conjecture has originated with Professor Wilken, who thinks, he recognises the Afghans in the Assakanes.† If these were indeed Afghans, the Afghan language would have been spoken throughout Cabul, and the language of the coins must be the sources of the Pushtoo. Without observing, that neither ancient authorities nor modern Afghan history, admit or require this supposition, the correct assertion of the learned academician himself, that the Afghans belonged to the Medo-Persic tribe, is at variance with it; the Assakanes inhabited a country, where even in the 7th century A. D., an Indian language was spoken. The language of the Afghans, moreover, shows an evident difference from the language on the coins; as, for instance, it substitutes like Zend, z for the Indian h, *zumy*, winter, for *hima*, and this z is altered in the western Afghan dialect into *gh*, *urighu* (rice) for *urizu*, for *vrihi*.‡

* Account, &c. II, 10. 33. 44. 50. 56. &c.

† Abhandlg. der Berl. Acad. 1818-19 p. 261.

‡ **Opvζa* has been introduced through Persian into Grecian language.

Though I cannot therefore discover the Afghans on the Indian frontier at so early a period, yet I willingly allow, that the original seats of the Afghans, may have had a situation sufficiently near Cabul. On this supposition, it would by no means be surprising, if their language were not a purely Iranian dialect, but rather like that on the coins, forming the transitional dialect between the Iranian and the Indian, but approaching (in point of locality), the west, with a prevailing affinity to Iranian peculiarities. I dare, however, not indulge myself by pursuing this interesting investigation.

§ 14.

The Kings. Classes of coins, and places of their discovery.

There is much more difficulty in obtaining for the seat of the different empires, established by the coins, and for the series of their kings, even that degree of probability, which we have, I think, succeeded in arriving at for both the language and alphabet.

It will here be necessary, first to have before us the materials to be arranged; I shall accordingly enumerate the names of the kings according to the coins, adding the facts, which hence result, as regard the æra, the succession, or any remarkable circumstance with respect to each of those kings. I have invariably noted the places, where the coins have been discovered, if it appeared to be instrumental in determining the native country of the kings. The classes I have adopted, are founded on the language and alphabet, and their sub-divisions upon the numismatic inquiries of Mr. Raoul-Rochette, and upon the titles of the kings.

Concerning this catalogue, I must premise, that it has been only made with a view to facilitate succeeding investigations, and that it does not pretend to giving a numismatic description.

I. *Coins with merely Greek characters.*

§ 1. *Greek characters, and purely Greek names and titles.*

Euthydemos. Head with diadem; on the reverse Hercules, either standing with the club raised in his left hand, the lion's skin over the arm, and in the right hand a crown, or else a common Hercules, seated, leaning on his left hand, in the right the

club placed on a rock.* The coins presenting Hercules in a standing position, exhibit the youthful head of the king, which indeed differs from the head of Euthydemus, as ordinarily represented, and rather resembles that of Agathokles; hence Mr. Raoul-Rochette's conjecture, that Euthydemus may have succeeded Agathokles, and may at first have retained on his coins the portrait of his predecessor.† The resemblance with that king, however, appears not striking enough, and the connexion between both of them could be only admitted in the reversed succession. Lastly, a coin has been discovered, the reverse of which represents a horse without trapping, and galloping;‡ one legend occurs invariably. ΒΑΣΙΛΕΩΣ ΕΥΘΥΔΗΜΟΥ. Bronze coins with an Apollo, crowned with laurel, and the reverse with the tripod. R. R. II. 60. J. d. S. p. 387.

We may get some single specimens of these coins, which are distinguished for their beauty, from the south of the Caucasus; but they come in course of trade from Balkh; there occur too in Bokhara many coins of Euthedemos, barbarously executed, with an almost illegible legend, which sometime eluded all attempts at reading it.§ These latter are imitations, originating with the Scythians of the north, whom we cannot call Indo-Scythians, as they had not arrived yet in India.

Demetrios, son of Euthydemus, a fact confirmed by the coins.||

Beardless, diademed head; reverse, helmeted Minerva, standing, with a long tunic, and a shorter one over it, the left hand leaning on the shield; in the right a spear. Another reverse with Hercules standing, either similar to the coins of the father,¶ or crowning himself with his right hand; and the head of the king, elegantly adorned with the trunk and tusks of an elephant. This latter emblem, evidently refers to his Indian conquests. Mr. Raoul-Rochette infers from the similarity of the other type with that on the coins of the Eukratides, that these

* R. R. J. des Sav. p. 328. p. 386. I. p. 7. A. T. IV. pl. XXV. No. 1. V. pl. XLVI. No. 3. † I. 8.

‡ As. T. V. pl. XLVI. No. 4. § R. R. I. 3. II. 12.

|| R. R. J. des Sav. p. 330. I. p. 3. II. 17.

¶ R. R. I. p. 7. &c. II. p. 16.

coins of Demetrios were struck, while he was unexpelled as yet from Bactria by Eukratides, and infers, that Demetrios had therefore also reigned in Bactria, though but for a short time.* That he laid claims to Bactria, is certain enough. These coins are likewise of superior workmanship, and in most elegant taste. Legend ΒΑΣΙΛΕΩΣ ΔΗΜΗΤΡΙΟΥ. The coins are rare, and have been partly transmitted to us through India, partly through Bokhara. Their proper place of discovery is perhaps not yet exhausted (discovered ?) On this hereafter. Mr. Mionnet (VIII. 473) pretends to infer from these coins the existence of two Demetrios; till this new fact in history is more surely proved, we may be allowed to treat this second Demetrios as “a king of shadows.”

Heliokles.—Known only by his coins, and first embodied in the series of Bactrian kings by Mionnet, then by Visconti.† Mionnet asserted, that he was the son of (or of an) Eukratides, while Mr. R. R. thinks him his predecessor.‡ A specimen has been brought from the city of Cabul by Mr. Honigberger,§ Type; Jupiter standing, with the thunderbolt, and the legend ΗΛΙΟΚΛΕΟΥΣ ΒΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ. On account of the epithet (*just*), Mr. R. R. puts Heliokles in connexion with other kings, who likewise style themselves *just*,|| as the founder of a separate branch; but Lysias, whom he had in mind, in forming his opinion, is a Spalyrios, and of the other Grecian kings, only one has the same epithet, viz. Archelios, a later discovery, he has indeed as well the Jupiter type, but he in addition calls himself ΝΙΚΗΦΟΡΟΣ, and has a native legend. A copper coin of Heliokles, the first specimen of this kind, has been discovered of late in the Punjab, (As. Trans. Vol. VI. 987,) it is not stated, whether with a native legend or not. I may be hereafter allowed to propose a conjecture on historic grounds concerning his era.

Eukratides. Mr. Raoul-Rochette¶ distributes the coins bearing this name, between two Eukratides, father and son, on the precedent of Bayer, who maintained, that some things

* I. p. 10. As. T. IV. pl. XXV. No. 2.

† R. R. J. des Sav. 1834. p. 329.

‡ R. R. I. p. 34. II. p. 26.

§ R. R. I. 3.

|| I. p. 26.

¶ T. der Sav. p. 387.

were mentioned of Eukratides, not in correspondence with the victorious king of this name; hence he concluded, the name of his son, successor, and murderer, was the same.* But that the son and parricide did bear the same name, is not conclusively established by authorities (of which hereafter); while Mr. Mueller† objects to this view from the very reason, that, according to the arrangement of M. R. R., this very Eukratides, known to us as a parricide, was called “the Great.” There occur indeed two specimens, one of which has also native legends. I here describe the purely Greek one alone, postponing my own view for the historic examination.

Diademed head of the king; reverse, a naked Apollo crowned with laurel, standing with one hand leaning on a bow, in the other an arrow. Legend ΒΑΣΙΛΕΩΣ ΕΥΚΡΑΤΙΔΟΥ.‡ This type never has a native legend. On other coins a head of Apollo with a laurel wreath; on the reverse, a horse with the same legend in Greek alone.§

The coins with the Dioscuri on horseback, with the title of “Great King,” and which are partly of purely Greek and some with a native legend, are assigned to Eukratides II.

This type of the Dioscuri, however, likewise occurs with the simple Greek legend, ΒΑΣΙΛΕΩΣ ΕΥΚΡΑΤΙΔΟΥ,|| and without the native character, which only appears, when the Greek has the word ΜΕΓΑΛΟΥ. The Dioscuri on horseback have sometimes a helmeted, and sometimes a diademed head of the king; those with the caps of the Dioscuri only a diademed head, with the title either simple, or at length.¶

It is evident, that neither the difference between “king” and “Great King,” nor the native legend, affords any criterion for assigning the type of the Dioscuri to the son. There remains the difference in the features of the king, which may be laid to a difference in age. On the native legend we shall remark hereafter.

* p. 95.

† p. 205

‡ J. des Sav. p. 386, I. No. 5.

§ R. R. II. 60.

|| A. T. IV. pl. xxv. No. 6. 7.

¶ A. T. V. pl. xlvi. No. 10. No. 11.

Masson found 107 coins of Eukratides in Beghram, he does not, however, distinguish them according to the types.*

There occur also coins of Agathokles, with a purely Greek legend; but as nobody would adopt the idea of *two* Agathokles, we shall postpone the investigation of this point.*

§ 2. *Purely Grecian characters, the kings not Greek, having, however, no barbarian titles.*

The following coins present a singular phenomenon. Mr. Masson discovered at Beghram,† in the space of three years two hundred and fifty-seven specimens of a coin with the legend ΒΑΣΙΑΣΕΥΣ ΒΑΣΙΑΕΩΝ ΣΩΤΗΡ ΜΕΓΑΣ, but without a proper name. The Greek legend being sometimes corrupted, we observe either ΒΑΣΙΑΕΥ or ΒΑΣΙΑΕΥΩΝ.‡ Bags full of these may be had in Affghanistan, and in the Punjab. The similar coins with a native legend, never have the bust of the nameless king. Mr. Raoul-Rochette describes them in this manner: “Bust of a king, the head encircled by a diadem and a nimbus; with his left hand holding an iron spear; no legend. Reverse, a man on horseback with the Greek legend, above mentioned. The head of the bust helmeted, occurs too as a variety.”§

The large number of these coins proves that this king possessed an ample empire, and did not reign for a short time; he must have governed Cabul, and a part of the Punjab. The corrupt Greek suggests an era, more recent than that of many other Indo-Scythian coins. The title σωτήρ seems to connect him to the Greek Soter family, which may have concluded with Hermaios. This is the remark of Mr. Mueller, and I am only prevented from adopting it, because the Kadaphes coins are apparently still nearer related to one or the other Hermaios, and all the other Soters have likewise native legends. M. Raoul-Rochette|| accounts for the want of the name by (the supposed existence of) an agreement, with regard to the currency, to the effect, that in order to put the coins into common circulation in neighbouring states, the name of none of the kings of those states was

* A. T. V. p. 547.

† A. T. V. p. 547.

‡ R. R. I. p. 26. As. T. IV. 345.

§ R. R. I. No. 17. No. 18. No. 19. As. T. IV. pl. xxiii. No. 26 (Among the Azes' coins.)

|| II. 38.

used on the coins. The nameless king, however, appears to have been too powerful to acquiesce in such a stipulation. According to Mr. Mueller, his name, on account of its dissonance, could not be well expressed in Greek. People, however, who were not offended at the nominative βασιλευ, or the genitive βασιλευων, would not have hesitated at obtruding a name as barbarian as possible, on the Greek letters, and if the attempt were unsuccessful in Greek, why was not given recourse to native letters?

I cannot explain, why there is no name; but from the use of Greek characters alone, it becomes probable, that the Soter belonged to a certain Scythian horde, which had for some time their abode in a country, where purely Greek, and not native characters, were adopted for the coins. The nameless king, who perhaps first settled his horde in Cabul and about the Indus, perhaps adhered at first to the established custom by not adopting native characters on his coins. At an after period, however, he perhaps used them; if indeed the coins with native legends, which M. Mionnet assigns him, be really his.*

There exist besides, coins of some other Indo-Scythian kings, with regard to which it is doubtful whether they have native or purely Greek legends. They bear the title "King of Kings," and some of them have a horse, others an elephant, and they reigned therefore partly in Bactria, partly in India. As the names are illegible, we shall here only refer to the engravings and descriptions of these coins; for we must at first leave even this undecided, to which of these kings the native legends belong, and whether we have to adopt a separate series of Indo-Scythian kings, who admitted purely Greek letters and titles, whilst the Kanerki dynasty adhered to Greek characters to express barbarian words. If the assertion, that to the north of the Caucasus the characters on the coins were not used, be well founded, we might presume, that those Indo-Scythian kings held fixed dominion in Bactria alone. Now those coins yield no other historical result, than that the Indo-Scythians were divided into

* VIII. p. 505. pl. x. No. 85.

a number of dynasties, and that we are far from knowing the whole series of their names.*

Lastly, we have yet to mention here the king Mayes.

Type a Caduceus ; legend ΒΑΣΙΛΕΩΣ ΜΑΥΟΥ. Reverse, the head of an elephant from which a bell hangs, of beautiful Grecian workmanship and with good Greek characters ; according to M. R. R., contemporary with Menandros and Apollodotos, as the same head of an elephant occurs on their coins ; his conjecture, that the name may be a variety of Apollodotos, has hardly any support whatever.† Mr. Mueller thinks these large copper coins to be the most ancient monuments of the Indo-Scythian dominion in India.‡ The elephant alludes indeed to a campaign against India. Being taken from the collections of the Generals Ventura and Allard, they refer to the Punjab. M. Mionnet ascribes to Mayes, moreover, a native legend, which consists of two signs.—This legend as given by Mr. Prinsep, is scarcely to be taken as letters ; M. R. R. has not noted it at all ; the pretended legend stands besides between βασιλέως and Μάου ; the name must have been expressed by ΠΑΟΥ, which does not appear with Mr. Mionnet. How then has this king used a native legend ? As respects this king also, I must leave it to numismaticians to make a historical application.

§ 3. *Pure Greek characters ; barbarian names and words.*

Kodes. Small silver coins. A head, the hair wreathed with fillets, and descending to the neck ; it would appear, that the face is different (on different specimens) ; one has mustachoes, but all of them have suffered much. Legend, ΚΩΔΟΥ, complete on but one coin.§ Reverse, a figure standing, the right hand lean-

* As. Trans. v. pl. xxxv. No. 4, iv. pl. xxi. No. 12. No. 13. No. 14. Then iv. pl. xxi. No. 7 and 8, lastly iv. pl. xxi. No. 11. Compare Mionnet viii. p. 504. No. 135, No. 136, No. 141, No. 142. I shall not undertake to read the native legends, represented x. No. 88.

† II. p. 49. The coins R. R. II. No. 18. As. Trans. iv. pl. xxv. No. 4. New varieties of them are discovered of late in the Punjab. As. Trans. vi. 987.

‡ 228.

§ As. Trans. v. pl. xlvi. No. 16, No. 17. No. 18. iv. pl. xxv. No. 11. No. 12. No. 13. R. R. J. d. S. 1834. No. 8. No. 9. p. 389.

ing on the hip, in the left a spear, indistinct head dress, flames behind the shoulders. Legend according to Mr. Prinsep's conjecture: (A)PΔHΘPOY MAKAP(OΣ). The Greek letters terminate in points; upon No. 13 there is perhaps the name of another god. A second variety, has the anterior half of a horse. They come from Cabul and western India; but likewise through Bokhara to Russia.

The horse refers to Bactria, as do the purely Greek characters and the god of fire, with whom the names of gods on the Kanerki coins are connected.

Kodes is perhaps the very same king, who went southwards over the Caucasus, and founded an empire on the banks of the Indus and of the Cabul, for the Kanerkis.

Kanerki coins. I shall not repeat the remarks above made on the legends, the words PAO NANO PAO and KOPANO, and the names of gods. Kanerki is represented in a standing position, with a long Usbek coat, pointed Tartar cap, the right hand leaning on a spear (and a bow over the back, T. A. V. xxxvi b. 9.) with the left making an offering over an altar. The figures of gods on the reverse are already described. In the note I shall mention the coin,* some from the topes in Manikyala, Jellalabad, and from Cabul and the Punjab, from Benares, and likewise from the Ganges.†

Oerki. Bust of the king, adorned with a tiara, holding with the hand a plant which he contemplates.‡ The same places of discovery. No coins having Greek words, or the god of the sun.

A man mounted on an elephant; his name illegible, only PAO NANO PAO-KOPANO.§

On the coins of another king of this series, a female figure

* T. As. iii. pl. xii. pl. xxv. iv. pl. li. v. pl. xxxvi. Trans. R. As. Soc. i. pl. xii. R. R. J. des Sav. 1834. and i. pl. ii. and the authorities. i. 57.

† As. Trans. iii. p. 443. iv. p. 631. R. R. ii. p. 4.

‡ As. Trans. iii. pl. xxi. No. 2. xxii. No. 24. iv. pl. xxxviii. No. 9. No. 7. v. pl. xxxvi. No. 3. No. 7. R. R. ii. p. 58. J. des Sav. 1834. No. 10. As. Trans. iii. p. 445.

§ A. T. iii. pl. li. No. 10. v. pl. xlvi. No. 13. No. 12. iv. pl. li. No. 10. A. T. v. p. 722.

with a glory, seated on a couch ; one foot on the ground, the other, on the couch.* Here also the name is illegible.

There is another type of a figure sitting in a cross-legged position ; some other varieties may probably be still discovered.

The most ancient specimens of these coins have a tolerably good style, and distinct letters ; both become gradually worse, and lastly deteriorate into a chaos ; then follow the Indian imitations. The places of discovery prove, that the Kanerki dynasty possessed, at least at the commencement of their rule, a large territorial dominion ; from the traces of the Shiva worship, we may conclude that the Kanerkis added to the worship of Mithra, introduced by them from Bactria, the worship of Shiva, as it occurred with the Kadaphises.† Hence they must (partly at least) have taken possession of the dominions of the Kadaphises. We may consider their dialect either as a more modern one, or as a provincial variety. It is evident from the coins, that they out-lastcd the Kadaphises, who never sunk into the same barbarism.

It will remain doubtful, whether the Kanerkis maintained themselves till within the Sassanian period, unless it be decided, that the topes must be ascribed indisputably to the Kanerkis. They certainly reigned in India before the time of the Sassanians. Lastly, the opinion, that the Kanerkis were Buddhists, or in other words, that we have to recognise Kanishka in Kanerki,

* A. T. III. pl. XXII. No. 29. IV. pl. 21. No. 9.

† The worship of Shiva appears to have prevailed in Cabul in the first centuries of our era, and beside it, pure Buddhism was widely diffused. Hiuan Thsang at least mentions a temple of Bhîmâ, viz. of Pârvatî or Doorga, in Gandhâra, p. 379. But Megasthenes appears to have already corrected this mistake. For if he reported, according to Arrian and Strabo, that the Indians of the plains worshipped Hercules (whereby Mathura is made mention of) and that the mountaineers, on the other hand, adored Dionysos, these latter must be probably understood to be the inhabitants of the mountainous districts about the Cabul, and below Kazmira, in the Punjab, while the plains are those of the inner country, and on the borders of the Jumna and Ganges. It is true, it has been of late doubted, whether Hercules be Krishna, but I hardly think, one acquainted with these subjects, will doubt it any more, than that Dionysos cannot be but Shiva.

must continue to be improbable, until Kanerki be also discovered on Buddhistic monuments.

II. *Greek, and Indian characters.*

The coins of Agathokles and Pantaleon alone as yet compose this class.

Agathokles. Diademed head of the king; reverse, a standing Jupiter, with the left hand leaning on his sceptre, holding on the right a small three headed Artemis, bearing a torch. Legend, ΒΑΣΙΛΕΩΣ ΑΓΑΘΟΚΛΕΟΥΣ.* Tetradrachma of very superior workmanship.

M. Raoul-Rochette has proved, that the figure on the legend is the Persian Artemis Hecate, the Ζαρῆτις or Ζάρα, whose worship Artaxerxes Mnemon was endeavouring to propagate within his empire, and Bactria is especially mentioned† with regard to this. Male head, with Dionysos' crown of grapes. Reverse, a panther walking, holding with his fore claw a grape. The same legend as above mentioned. Tetradrachma.‡

Square copper coins with the same legend. On the obverse, a female Bacchanal, flourishing the thyrsus, and the legend above represented, in old Indian characters. Eleven specimens have been discovered, all from Cabul.§

M. Raoul-Rochette has tried by a vast display of learning to establish his conjecture, that Agathokles was the first king of Bactria, he having been the Eparch of Persia under Antiochus the second, who is called Pherekles by others, and whose pederasty is said to have excited the Parthian revolt.|| Not to mention other objections, this conjecture falls to nothing owing to the Indian letters, which Agathokles cannot have used for his Bactrian subjects. But previously to Euthydemus, no Bactrian king made conquests southwards from the Caucasus. As copper coins are less likely to go by trade into other countries than gold and silver (coins,) the place of discovery of the

* R. R. J. des Sav. 1834. p. 332. No. 2. II. No. I. p. 12 A. T. IV. pl. xxv. No. 3. from the Punjab.)

† (J. des S. at other places, p. 340. II. p. 13.)

‡ (J. des S. No. 1. by the way of St. Petersburg.)

§ R. R. II No. I. II. p. II. A. T. V. pl. xxxv. No. 9.

|| (J. d. S. p. 336.)

Agathokles' coins points out an empire on the borders of the Cabul river.

The worship of the Persian Artemis must not appear surprising on the coin of a king, who, though not reigning in Bactria, yet started from that country. The Bacchanal symbols certainly allude to an Indian expedition; but it is surprising, that Agathokles and Pantaleon, almost coeval with him, should alone parade these symbols of Dionysos. Going a step further, we dare assert, that Agathokles reigned immediately over those districts, where the traces of the expedition of Dionysos were fancied to be extant; viz. over the country of the Nisaeans. But it is not India Proper, but Cabul, that is celebrated for her grapes; in Cabul too, are the copper coins of Agathokles discovered, and instead of the nation of the Nisaeans (a somewhat fabulous race) of Alexander's period, we observe in the late report of Ptolemy, the well defined town of Nagara, surnamed Dionysopolis, which denomination can have been only given by a Greek king, probably by Agathokles. His use of Indian, and not Cabulian characters, leads to the conclusion, that his reign succeeded a previous use of Indian characters; viz. it argues a former Indian domination in these districts. I therefore think he is the same, who first brought Grecian arms down the Cabul river. According to Mr. Mueller,* he reigned about the Upper Ganges. In this case he must before Menandros have advanced beyond the Hyphasis to the Jumna, and even further, which is at variance with Strabo's explicit statement. His coins, exhibiting a much better style in art than those of Menandros, he must have reigned before this king. Strabo would likewise mention him as the first, who crossed the Hyphasis.

Pantaleon. Square copper coins, exactly like those of Agathokles, before described as from Cabul and the Punjab.† Legend, ΒΑΣΙΛΕΩΣ ΠΑΝΤΑΛΕΟΝΤ(ΟΣ) and the other legend in Indian characters, above mentioned. From the small number of coins it becomes probable, that Pantaleon did reign but for a short time; the dominion, founded by Agathokles, must on the whole have been of short duration. We shall hereafter recur to this subject.

* p. 213.

† As. Trans. III. p. 168. v. p. 552.

Greek letters *great king*, while the others adopt the simple βασιλεύς as equivalent to *Mahârâjô*. It therefore almost appears, as if Eukratides first used Cabulian legends, without properly attending to the comparative value of the different terms ; since the same etymological value of two words in different languages is in many cases not the same in the real acceptation of the words.

Mithridates VI. of Parthia, had adopted the title *king of kings* ; and Eukratides seems to have imitated his contemporary in assuming this title.* Coins of Eukratides are frequently met with in Cabul.†

On account of the dispute of numismatians, we shall postpone the decision, whether we must adopt two or only one Eukratides, to the examination of the historic authorities.

Antimachos. Head of the king with the Macedonian hat, (*kausia*), and Neptune with a palm on the reverse. Epithet of the king, Θεός. A coin, published by Köhler, obtained through Russia, which refers to a victory at sea.‡ Victory dressed and winged, in the right hand a palm. Legend, ANTIMACHΟΥ ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ. Reverse, the king on horseback galloping. Cabulian legend, 𐰽𐰺𐰸𐰸𐰺𐰽 𐰽𐰺𐰸𐰸𐰺𐰽 𐰽𐰺𐰸𐰸𐰺𐰽, *Mahârâjô gajavatô Atimakhô*.§ From Cabul. M. R. R. has proved, that these coins are an imitation of those of the Seleucidian Antiochos IV., who likewise styled himself Θεός. Antiochos reigned 176—164. 'B. C., and Antimachos therefore about the same time. The correspondence of these coins with the tetradrachmas of Heliocles will also give evidence, that Antimachos was his contemporary. On this supposition, it becomes difficult to place both of them before Eukratides. The Cabulian legend points to an empire to the south of the Caucasus, but perhaps not in Cabul itself, as the Antimachos' coins are scanty in Beggram. I beg to direct the attention to two points: the equestrian coins form a separa-

* Visconti. Iconogr. Grecque. III. 76.

† As. Trans. III. 164. v. 547.

‡ R. R. J. des Sav. p. 329. II. p. 18.

§ R. R. II. No. 4, p. 17. A. T. IV. pl. XXI. No. 3. at the same place No. 4 has S for 𐰺, therefore perhaps a 𐰽, or k for kh.

ted class, and Antimachos has strengthened his dominion by a victory at sea.

Philoxenos. Bust of the king; the bow of the diadem projecting from under the helmet. Legend, ΒΑΣΙΛΕΩΣ ΑΝΙΚΗΤΟΥ ΦΙΛΟΞΕΝΟΥ. Reverse, king on horseback galloping. Cabulian legend: *Mahārājō apalihatō pilashinō* (or *pilushino*).*

Demeter Karpoforos; in the right hand a crown; in the left a cornucopia; the foregoing Greek legend; reverse, the bull with the hump. The same Cabulian legend.†

The same obverse, with the reverse of a victory with crown and palm (only described).

M. Raoul-Rochette takes him for a king, who reigned in the neighbourhood of the Scythians, and valiantly fought against them on horseback. The Cabulian legend prevents us from acceding to this. Philoxenos wears a *kausia*, as Eukratides and Antimachos do, and as a horseman, moreover, is analagous with them. The bull with the hump is correctly interpreted as referring to a particular country, but to what country, will be evident from the coins of Azes. In Beghram no coins of Philoxenos have been discovered by Mr. Masson.

Archelios. Diademed head of the king. Legend, ΒΑΣΙΛΕΩΣ (ΔΙΚΑ)ΙΟΥ ΝΙΚΗΦΟΡΟΥ ΑΡΧΕΛΙΟΥ. Reverse, Jupiter, seated on a throne, the sceptre in the left hand, the thunderbolt in the right, and the legend, 𐎠𐎡𐎴𐎧𐎺𐎠 𐎠𐎡𐎴𐎧𐎺𐎠 𐎠𐎡𐎴𐎧𐎺𐎠 𐎠𐎡𐎴𐎧𐎺𐎠, *maharajō, dhamikō, gajavatō Achilijō*. From Beghram.

I have given him this place, because the epithet "victorious" puts him into comparison with Antimachos; Antialkides, however, bears the same epithet, and has besides, the Jupiter.

Antialkides. Uncovered head of the king, with the branch of a palm, crossing the field. Legend, ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΑΛΚΙΔΟΥ. Reverse, the Dioscuri caps with palms, as upon the coins of Eukratides. Legend, *maharajō gajavatō Atialikadō*.‡

* R. R. II. No. V. A. T. No. IV. pl. xxi. No. 1.

† R. R. II. No VI. As. T. IV. pl. xxi. No. 2.

‡ R. R. II. No. 7. I. No. 15. A. T. IV. pl. xxvi. No. 9. 10. 11.

M. Raoul-Rochette assigns to him with certainty a place immediately following Eukratides, in a neighbouring country, which we cannot, however, look for with him to the North of the Caucasus.* On account of the title Nikephoros, he has some analogy with Antimachos.

There exists another coin of this monarch with the head of the king, with the *kausia* and the same legend; the reverse represents Jupiter, seated on a throne, with a sceptre and a winged victory in his right hand. The same native legend.† All these coins are from Cabul or the neighbouring districts.‡

Lysias. Uncovered head of the king, the palm crossing the field as with Antialkides, the bust partly given. Legend, ΒΑΣΙΛΕΩΣ ΑΝΙΚΗΤΟΥ ΛΥΣΙΟΥ. Reverse, elephant.§ Legend, *Mahārājō apalihātō lisijō* (lisajō.)

M. R. R. pronounces him with full confidence successor of Antialkides;|| here likewise follow the titles *Aniketos* and *Nikephoros*, one after the other, as above mentioned, with Philoxenos and Antimachos. Coins of Lysias and of Antialkides are found in Cabul; ¶ the elephant alludes to an Indian expedition. The dynasty to which Antialkides and Lysias belonged, seems therefore in fact to have had their site in Cabul, and their empire was probably established upon the ruins of one more extensive.

I here insert a coin, for which I cannot discover a proper place.

Amyntas. Bust of the king with indistinct head-dress; legend, ΒΑΣΙΛΕΩΣ ΝΙΚΑΤΟΡΟΣ ΑΜΥΝΤΟΥ. Reverse, helmeted Minerva, with shield and lance, extending her right hand. Legend, *Maharājō, gajavatō amitō*. From the Punjab.¶¶

We now come to a longer series, bearing the title "deliverer."

Menandros. Helmeted head of the king with the upper part of the bust, and the chlamys; legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΜΕΝΑΝΔΡΟΥ. Reverse, Minerva *πρόμαχος*. R. R. I. No. 8. Legend, *Maharājō tādārō Minadhō*.

* II. p. 23. † As. Trans. V. pl. xxxv. No. 2. ‡ R. R. II. p. 22.

§ R. R. II. No. 18. As. Trans. IV. pl. xxvi. No. 12. || II. p. 24.

¶ R. R. II. p. 24.

¶¶ A. T. V. pl. xlvi. No. 1.

Helmeted head of the king, with the same Greek legend. Reverse, a clothed victory, with wings, palm, and crown. The same Cabulian legend.*

Head of an elephant, with the same Greek legend. Reverse, a club, with the Cabulian legend.†

Uncovered head of the king, with the upper part of the bust dressed in the chlamys; the right hand raised to throw a lance. The same Greek legend. Reverse, Thessalian Minerva, protecting herself with the shield; in the right hand the thunderbolt raised. The same Cabulian legend.‡

Head of the king in a helmet, and the Greek legend. Reverse, Ægis, and Cabulian legend.§

The same obverse; upon the reverse an owl, and the Cabulian legend.||

Obverse, wheel with eight spokes, and the Greek legend. Reverse, branch of a palm, and the Cabulian legend.

Uncovered head of the king, with the Greek legend; reverse head of an animal, which Mr. Prinsep, with probable correctness describes as an elephant, though Mr. Masson has drawn a dolphin. The same Cabulian legend.¶ Lastly, head of a boar, with the Greek legend. Reverse, branch of a palm surrounded by the native legend.**

Coins of Menandros have been frequently discovered in Begram by Mr. Masson, so many even as one hundred and fifty-three specimens up to the year 1835; they are likewise met with in Agra, on the borders of the Jumna, and near Mathura.†† These were probably the extreme points of his empire. We have shown, that his reign extended to the Jumna, and the elephant on his coins corroborates this extent of his dominion. Whether he also ruled in Bactria, we shall hereafter inquire into; the native legends rather disprove than confirm this opinion.

* R. R. I. No. 9. 10. As. Trans. IV. pl. xxvi. No. 3.

† R. R. I. No. II. p. 17. As. Trans. IV. pl. xxvi. No. 2.

‡ R. R. II. No. 12. As. Trans. IV. pl. xxvi. No. 1.

§ As. Trans. V. pl. xlvi. No. 5.

|| At the same place, No. 6.

¶ At the same place, No. 8, as the preceding copper coin; according to M. R. R. II. 34. a club.

** At the same place, No. 9.

†† As. Trans. v. p. 547. 722. Trans. of the R. A. S. I. 315.

For the historical arrangement of all those kings, it is of vital importance to ascertain the era of Menandros. M. Raoul-Rochette has most plausibly assigned to Menandros a later period than to Eukratides.* The inference he further draws from this position of Menandros, that he first took possession of the Indian empire of Demetrios, and afterwards of the Bactrian dominion of Eukratides, is hardly to be reconciled with the authorities of written history; we do not understand, in fact, how Menandros could dethrone Demetrios, since Eukratides had done it; we shall therefore hereafter lay hold of the only fact which is proved with probability by numismatic inquiry, viz. that Menandros seems to have reigned subsequently to Eukratides.

Apollodotos. Apollo standing, leaning his left hand on the bow, holding a lance with his right. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ. Reverse, a tripod: legend, *Maharajô Apaladatô tadarô*. †

Uncovered head of the king, with diadem and upper part of the bust, and the chlamys. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΚΑΙ ΦΙΛΟΠΑΤΟΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ. Reverse, Thessalian Minerva, as upon the coins of Menandros, covering herself with the Ægis instead of the shield. The same native legend, without *φιλοπάτωρ*, *tâdârô* alone preceding the name. ‡ Elephant in motion. Legend as before mentioned: reverse, the humped bull, and the same native legend. §

The coins are discovered at the same places with those of Menandros, and M. Raoul-Rochette deserves the merit of having proved, with the utmost probability, that Apollodotus was the son of Menandros.

Diomedes. The Dioscuri, standing, and with lances. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΔΙΟΜΗΔΟΥ. Reverse, the humped bull, and the native legend, which he probably thus restored:

* II. p. 32. 33.

† R. R. I. No. 12. As. Trans. IV. pl. xxvi. No. 6. No. 7. No. 8.

‡ R. R. II. No. 13. As. Trans. IV. pl. xxvi. No. 4.

§ R. R. II. No. 14. As. Trans. IV. pl. xxvi. No. 5. See. R. R. II. p. 18.

𐎧𐎡𐎴𐎠 𐎧𐎡𐎴𐎠 (𐎧𐎡)𐎠𐎥 (𐎥) *Maharajô tâdârô Dijamidô*.* Only one specimen from Beggram. The humped bull, and the epithet, prove the right of position as here given.

Agathokleia. Helmeted head, which must be the head of a woman, with the upper part of the bust, and of the dress. Legend, ΒΑΣΙΛΙΣΣΑΣ ΘΕΟΠΡΟΠΙΟΥ ΑΓΑΘΟΚΛΕΙΑΣ. Reverse, Hercules seated, in the right hand the club, placed on his knee, with the left supporting himself, as on the coins of Euthydemus. Legend, *Maharajô tâdârô Mikonidô*.†

Howsoever we may read the name, it is certain, that we have here a new king, whose epithet assigns him a place among the successors of Menandros. The place of discovery is not mentioned; the coin is, however, found in India. If any relation is to be admitted between Euthydemus and Agathokles, we may perhaps recognise another analogy in the fact, that Agathokleia exhibits a type of the Euthydemus' coins. She is certainly, however, the wife of the new king, mentioned only in this place; perhaps a heroine of masculine character, like Eurydike (the niece of Alexander, and grand-daughter of Philip), whom her husband honored by associating her with himself upon his coins. May not the unusual epithet perhaps allude to this fact? ‡

Hermaios. Uncovered diademed head of the king. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΕΡΜΑΙΟΥ. Reverse, Olympian Jupiter, seated on his throne. Legend, *mahârâjô tâdârô, hirmajô*.§

Uncovered head of the king, with diadem, the upper part of the bust, and of the chlamys. Reverse, Olympian Jupiter seated, and extending his right hand. Legend as above described.||

Head of the king, probably with diadem, the same Greek legend; the reverse has a horse; and the native legend as above described.¶

* As. Trans. V. pl. xxv. No. 3. † As. Trans. V. pl. xlvi. No. 2.

‡ I find θεότροπος to be authorized by one passage alone in Heliodor. Carm. v. 250, as an epithet to ξηλος. Only one Greek king of these provinces, Antimachos, has styled himself God.

§ R. R. I. No. 13 (where the initial letter in tadaro is misdrawn). As. Trans. IV. pl. xxiv. No. 1.

|| R. R. I. No. 14. p. 21. As. Trans. IV. pl. xxiv. No. 2. No. 3. No. 4.

¶ As. Trans. V. pl. xxxv. No. 11.

In Beghram so great a number of the coins of Hermaios have been discovered, that no doubt can be entertained of the seat of his empire. Mr. Masson thought he might adopt, according to the difference of the types, three different kings of this name, an opinion, rejected by M. Raoul-Rochette.* There is no doubt the coins, above described, with the bust, and the name of Hermaios on the obverse, and with Hercules, standing and leaning on the club and the curious native legends on the reverse,† do not belong to the Greek Hermaios himself, as in the Greek legend the name of Kadaphes is substituted for that of Hermaios, without any alteration of the type. Those only upon which ΖΑΘΟΥ occurs, have perhaps a title in another type; all the coins, however, that are published, are very indistinct.‡

As these coins prove that a Kadaphes took possession of the empire of Hermaios, so other facts concur in giving evidence, that Hermaios concluded the series of the Soter dynasty. His coins represent a rapid decline of art, and are partly excelled by those of the more ancient Indo-Scythians. M. R. R. has also here the merit of having proved, that the type of the Olympian Jupiter is an imitation of the coins of Alexander II. of Syria,§ and that Hermaios must have accordingly reigned after the years 129—23. B. C.

With Kadaphes, above mentioned, Kadphises is connected by name; but as previously to him, other Indo-Scythians must have ruled in the country on the borders of the Cabul, we shall first insert them here.

Barbarian Kings.

Azes. King on horseback, in his right hand a lance. Legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΟΥ. Reverse, Minerva, with the Ægis on her arm, in the left hand the lance, the right raised. Legend, *mahârâjô rajârâjô mahatô Ajô.*|| Or reverse, Minerva clothed, holding shield and spear in a moving

* As. Trans. III. p. 162. v. p. 547. R. R. II. p. 37.

† R. R. II. p. 36.

‡ As. Trans. V. pl. xxxv. No. 13. new coins of this class have been lately discovered, VI. 987.

§ I. p. 19.

|| R. R. II. No. 15. As. Trans. IV. pl. xxiii. No. 18.

position.* Or, reverse with a male figure in a tight tunic ; tiara with ribbands hanging down, and bearing on the right hand a winged Victory. On both of them the same native legend, which is but seldom completely preserved.†

Or, the same obverse ; reverse, a male figure, standing, with the tiara, and long stole, holding in the right hand an idol.‡ As far as traceable, the same native legend. Or, reverse with an Abundantia,§ standing and holding a cornucopia. Native legend, *maharajó*, *maható*, *dhamikó rajádirájó Ajó*. This complete legend is on the reverse not discernible.|| Obverse, Ceres, seated on a throne, in the left hand a cornucopia, the right raised ; reverse, Hercules standing, and leaning on his club.¶ As far as legible, the simple native legend.

The following coins are of importance, as they mark the provinces, which were under Azes' dominion.

Obverse, the king on horseback. Reverse, the humped bull ; on others, a Bactrian camel.** Obverse, elephant ; reverse, the humped bull.††

Obverse, humped bull ; reverse, lion without mane,‡‡ or Bactrian camel.§§ The Greek legend always the same, and the simple native legend ("without *dhamiko*") on some, *rajara-jó* ; on others, *rájádírájó*.

Obverse, Neptune clad in the pallium, standing, with the left hand leaning on the trident, the right foot placed on the figure of a man, as if swimming. Reverse, a female figure in a long robe.|||| M. R. R. has proved, that these symbols allude to

* R. R. II. p. 40. As. Trans. iii. pl. xi. 45. No. pl. xxiii. No. 15.

† R. R. II. No. 19. As. Trans. at the same place xxiii. No. 17, No. 19.

‡ R. R. II. No. 16. As. Trans. iv. pl. xxiii. No. 24. perhaps also No. 20. No. 21.

§ So in original. Goddess of Plenty.

|| R. R. II. p. 43. As. Trans. IV. pl. xxiii. No. 22. The legend v. p. 549.

¶ R. R. II. p. 45. As. Trans. iv. pl. xxii. No. 10. No. 11.

** R. R. II. p. 43. As. Trans. IV. pl. XXII. No. 9.

†† R. R. II. p. 44. As. Trans. IV. pl. XXII. No. 4, 5.

‡‡ At the same place No. 1, 2, 3.

§§ No. 6, 7, 8.

|||| R. R. II. No. 17, As. Trans. IV. pl. XXIII. No. 14.

the Indus river, and to India conquered. Legends, as above described.

As now by these coins Azes lays claim to having conquered the Indus, so the four animals evidently point out the extent of his dominion. The Bactrian camel requires no interpretation, nor the maneless lion, which undoubtedly alludes to an Indian district, and though in our time the lion is only met with in Guzerat,* they must in Azes' time not have been confined to that province. I would rather presume, that by the adoption of the lion, the Sinha, the subduing of the lions among Indian men, viz. the Narasinha, Rajaputra was to be represented, therefore the subjugation of the warlike tribes in the modern Rajpootana, which moreover lies beyond† Guzerat. The Indus subjected, refers certainly to the districts towards its mouth, to Pattalene, which on the west is bounded by Guzerat. As now, the elephant likewise points to Indian provinces, a question arises as to what particular province this refers. It must of course allude to that part of India, which must have been likewise under Azes' dominion, viz. to the country to the north of Rajpootana, the Punjab; yet I confess, I know not why the elephant, which might obviously be used as an emblem for the whole of India, should be made to refer to this part of India alone. A glance

* Mr. Lassen is not aware, of how valuable an argument he has deprived himself in not having ascertained the existence of the lion in our days in Hurriana, where they were a few years ago plentiful; they are now more rare, being driven into the desert by sportsmen, and the gradual settlement of the country. Lions have been shot within the last fifteen years on the banks of the Chumbul, not more than fifty miles from Dholepore.



† I have already observed, that the lion even in our days is known to exist at no great distance from the Indus. It is perhaps worthy of remark in this place, that ample evidence is extant as to the great changes which must have taken place in the localities of wild animals in India, on the testimony of Baber, who mentions killing the rhinoceros on the banks of the Sind and Behreh. "There are numbers in the jungles of Pershawur and Hashhagar," according to Baber, (A. D. 1526), whereas in our own days that animal is not found to frequent any part of upper India above the Pillibheet forests in Rohilkhund; under these circumstances, it is hard to fix a location for the lion in the days of Azes.



at the map must give evidence, that Azes could not allude to any other country.*

It will be proved hereafter, that the Greek kings also, who have chosen the emblem of the elephant for their coins, must have especially referred to the Punjab.

If then the elephant and the lion allude to India, and if Azes also possessed Bactria, he cannot have typified by the humped bull any other country than that on the Cabul. This interpretation is also very well adapted to the other instances in which this symbol occurs; moreover, the Chinese mention the very same humped bull as an animal they for the first time met with in Kipin;† the names of Cabura (*gopura*, town of cows,) Kophen, and Koas, are perhaps allied to the name of the animal; on this point, however, the native orthography of these names alone can decide.

Azes, moreover, proclaims himself the possessor of so many provinces, upon those coins, where, besides the ordinary reverse of the king on horseback, the reverse exhibits a Victory,‡ having in the left hand a palm, in the right an indistinct effigy, probably bearing a trident. The native legend is *mahārājō rājarājō mahatō Ajilisō*. Of this hereafter.

We first mention the coins on which he is seen seated cross-legged, a sword across the knee, while the reverse has a four-armed male figure.§ I think, it certainly represents the Indian god Shiva. He had therefore adopted the Indian worship, as did after him Kadphises, and in some degree the Kanerkis. Azes was either also called *Azilises*, or this was the name of his son and successor. This fact is proved not only by the coins, already mentioned, but also by the following:

King on horseback, with lance depressed, and the Greek legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΙΑΙΣΟΥ.

* We have an excellent dissertation by Mr. Ritter, on the extreme boundary within which the lion is found in India, Erdkunde VI. p. 709, to which I willingly refer.

† Ritter, Erdkunde, VII. 684.

‡ R. R. I. No. 16.

§ As. Trans. IV. pl. XXII. No. 12, 13. R. R. II. p. 46.

Reverse, Victory with a palm in her left hand ; in the right a trident ; native legend, *Mahárájô rájârájô mahatô, Ajilisô*.*

The same obverse, with the reverse of the humped bull, and with the same legends.†

Azilises therefore claims Cabul and the country on the Indus to the sea, and if he were another king than Azes, as I think he was, he must have been his successor, on account of the exact correspondence in their coins.

It is, however, of far greater importance, to determine the period of those kings.

The coins of Azes are so closely connected with Greek types, that he must undoubtedly be a proximate successor of the Greek kings and their dominion.‡ Kadphises and the Kanerkis are at a greater distance. Kadaphes alone pretends to have conquered the empire of Hermaios ; and yet, this Kadaphes must have lived, according to the coins, at a later period than Azes. But if then Hermaios reigned about the year 120 B. C., Kadaphes must be of almost the same period ; Azes would be, on this supposition, an earlier successor to the other Grecian thrones ; he preceded Kadaphes therefore, and must be considered as a cotemporary of Hermaios. We shall hereafter state, to what conclusion the examination of the historic accounts must lead us. As to the matter in hand, M. Raoul-Rochette maintains, that the Minerva type of Azes was imitated after that of Vonones ; for as the titles and the monograms on the coins of both kings correspond with each other, Azes must be taken for the successor of Vonones.§

If I be allowed to object to the opinion of so solid as scholar, I venture the following remarks :—

First, the connexion between both of them being ascertained, why does it follow, that Vonones preceded Azes ? Certainly neither from the execution of the coins, nor from the historic accounts, would he do so. The Indo-Scythians decidedly reigned

* R. R. II. No. 20. As. Trans. IV. pl. XXIII. No. 27.

† At the same place, No. 28.

‡ R. R. II. p. 47, p. 41.

§ R. R. II. p. 30, 41.

on the Indus, previously to Vonones, even if he were the first of this name. Secondly, how can M. Raoul-Rochette reconcile the facts, that Azes was the immediate successor of the Greeks, and was still preceded by Vonones, obviously of Parthian origin. The monograms decide nothing as to the succession. Parthian kings, even Arsakes VI, had, a long time previously to Vonones, the title of "great king of kings." The epithet "just," assumed alike by Azes and Vonones (this escaped the notice of M. R. R.) also occurs much earlier in Parthian history, even in the time of Arsakes VII.* Why must Azes have borrowed these titles from Vonones? As Archelios among Greek kings already styled himself "just," why cannot Azes have adopted this title from him? Lastly, the Minerva type, upon which the whole argument is based, already occurs with Amyntas; why should it not have descended thence to Azes?

The Vonones under consideration, can hardly be the first of this name, and if M. Raoul-Rochette be right, we must assign Azes to a still later period. I think, however, I have proved, that we shall proceed with more certainty in determining Azes' place by historical accounts, independent of any connexion whatever with Vonones.

It is probable, that such an extensive empire as that of Azes, was not at once overthrown; thus we observe, besides those of Azilises, coins, apparently belonging to successors (of his dynasty); the emblems of the various provinces, however, viz. camel, humped bull, lion, and elephant, do not recur; hence we may conclude, that the successors were not powerful enough to maintain the whole empire.

Some of the coins above (see As. T. 1840, p. 645.) mentioned, perhaps, belong to this class; we would still add the following:

An equestrian coin with ΒΑΣΙΛΕΩΣ ΜΕΓΑΛΟΥ; reverse, king holding a spear, with a Kaftan,† and *mahárâjô*. Azes never has this dress himself; a name is not traceable.

Another coin of a horseman, with illegible Greek legend, and the monogram of the Kadphises' coins. Reverse, two male

* Visconti. Iconogr. III. 76, 80.

† As. Trans. IV. pl. XXIII. No. 25.

figures crown the king, who stands between them, and leans on a club. On the native legend are only the initial letters of *Mahârâjô* discernible, and of the name, 𑀧𑀸𑀓𑀭𑀺𑀓; the three middle letters should be, according to Mr. Prinsep 𑀧𑀸𑀓; according to the coin, however, this is hardly clear.*

There is a third equestrian coin, on which a figure of indistinct shape delivers to the horseman a diadem. Greek legend effaced. On the reverse, according to Mr. Prinsep, a Caduceus; the name indistinguishable; we can only read *Mahârâjô*.†

Of the following king, we know but the name of his brother; and even with this clue, his era has not been ascertained. It is Spaliriyos, likewise represented as a horseman. The reverse seems to have been much disfigured; the well known type of Hercules seated. The legends are above described.‡

On account of the similarity of the name, we place after him Spalirisos, with Tartarian Kaftan, and a palm over his left shoulder. The reverse is apparently a disfigured form of Jupiter,§ seated, as occurring on the coins of Hermaios. This king appears to have reigned in Laghman, and perhaps also in some neighbouring districts.

As these last mentioned sovereigns still preserve the relics of Grecian art, so also Vonones, who belongs to this class as being a horseman.

The king on horseback, with depressed lance. Legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΟΝΩΝΟΥ. Reverse, Jupiter, clad in the pallium, leaning on the sceptre, in the right hand the thunderbolt.|| On the reverse, a Victory without wings, in the left hand a palm, in the right something indistinguish-

* As. Trans. V. pl. XXXV. No. 5. from the Punjab. The position of the horseman is quite the same with the Parthian Artaban III.

† As. Trans. V. pl. XXXV. No. 15. pl. XLVI. No. 14. V. XXXV. perhaps belongs too, to this king.

‡ See As. Trans. IV. pl. XXI. No. 9. V. pl. XXXV. No. 6. R. R. II. No. 9. From the Punjab and Begram. R. R. II. p. 26. As. Trans. V. p. 551.

§ R. R. I. No. 21. As. Trans. V. pl. XXXV. No. 7. IV. pl. XXI. No. 7, six specimens from Manderor in Laghman. As. Trans. V. p. 551.

|| R. R. II. No. 10.

able.* The same Greek legend; the native one has been already mentioned.

Lastly, Hercules, the lion's skin in the left hand, the club on his arm, crowning himself with the right; reverse, Minerva, *νικηφόρος*, with a helmet; on her left hand the shield, and holding on her right hand a winged Victory.† According to the native legend, the word ΔΙΚΑΙΟΥ must have occurred here instead of ΜΕΓΑΛΟΥ

I think I have already proved, that the name Vonones cannot have occurred in native characters on the reverse of these coins, but probably the name Volagases; and further, that this Vonones need not have been, according to the coins, a predecessor of Azes. On comparison with other Parthian coins, it is likewise evident, that Vonones, in striking coins for his Cabulian subjects, followed the coinage of Cabul, and not of the Parthians. To trace the period of Vonones from coins, purely Parthian, would therefore be fallacious.

Another fact to determine the era of Vonones offers itself in the following. The initial letter of the Parthian coin, above described, is M. The Roman Victory on this coin, renders it necessary to assign to this king a later period than to Vonones I. who first of the Arsacides adopted this type.‡ This also leads to Meherdates, who was educated in Rome, and the initials of the name are more like ME than MO; but this does not decide the question, whether it were Vonones the First or the Second.

As we have now to admit among the sovereigns of Cabul, not Greeks, but Parthians also, who probably reigned after Azes, (on this hereafter), so a dynasty succeeded the great Indo-Scythian, which assumed the Soter-title of the Greeks. As Azes does not bear this title, they are probably not his descendants.

First, a nameless king, a horseman like Azes, with the legend [ΒΑΣΙΛΕΥΣ] ΒΑΣΙΛΕΥΩΝ (sic) ΚΩΤΗ[P] the name is effaced. The reverse presents a male figure walking, with the left hand extended; in the right an elevated spear, with a pecu-

* R. R. II. No. 14. of the coin. As. Trans. IV. pl. XXI. No. 15. I do not venture to trace the reverse.

† R. R. II. p. 30. I. No. 20. As. Trans. IV. pl. XXI. No. 10.

‡ Visconti Iconogr. III. 146.

liar head-dress, the left shoulder naked, otherwise clad in a robe after the fashion of the Gods on the Kanerki-coins. Legend, מַהַטֹּא תַדְהַרֹּא מַהַרַּאֲיֹא, *mahatô tadharô maharajô*; the name is also here effaced.*

The monogram on this coin is now the very same with that of the nameless Soter-megas, and we must recognise here, if not himself, yet a near successor of his. The Greek characters do not allow us to connect this king, or the nameless Soter, with the Greeks.

This Scythian Soter dynasty, however, prove themselves as of the same period, or as directly succeeding, the Arsacides above-mentioned, by the following coins, namely by those of Yndopherres. Having the same title, the same Greek characters, and, besides, the Victory of the Arsacides, he is allied to them. He is a complete barbarian in comparison with Azes, and if Yndopherres indeed succeeded the Parthians, Azes may claim an earlier era. Yndopherres, however, endeavours to keep the Greek style of the stamp, while the Kadphises, about to be mentioned, has removed every trace of Grecian art, save the characters, on which he also obtrudes words of his language.

Kadphises. The king on a low seat, bearded, in a high Tartar cap in the form of a cylinder, from which flowing ribbands descend, in a Kaftan and Tartar boots, holding a branch in his hand. In the space below, a club. Reverse, Siva in a light dress, the left hand on the bull Nandi, in the right the trident. There occurs the complete native legend above described; the Greek is the short one.†

The king standing in the same dress, the left hand on his hip, holding the right over a small altar, above which, a trident; in the left space a club (or a sceptre) the long Greek legend; the reverse as above described.‡

Bust of the king, in the right hand sceptre or club; above the cap, the moon-formed sickle (of Siva); in the left a small

* As. Trans. IV. pl. XXIII. No. 23.

† R. R. Journal des Sav. No. VIII.

‡ Trans. of the R. A. S. I. No. 10. R. R. I. No. 23. p. 30. As. Trans. III. pl. XXVI. No. 4. No. 5. V. p. 547. From Balkh, from Beghram and Manyâla.

hammer, short Greek legend. Reverse, Ardhanari, holding in his right hand a long trident, in the left the discus and pasa of Siva; the complete native legend.* The same reverse; the bust facing the right.†

Lastly, the king on a carriage with two horses; over the shoulder the club, in no proportion with the charioteer; the short Greek legend. Reverse, Ardhanari with the native legend.‡

As copper coins of Kadphises are dug out even near Benares,§ he must have reigned from Beghram to a great distance in India Proper. The execution of these coins is indeed still Greek, but whenever the worship of Siva is represented, the types have become purely Indian. This worship first appears, though not frequently, with Azes, is exclusive with Kadphises, and is joined by the Kanerkis with Bactrian gods, who have the same monogram with Kadphises, and are found together with his coins.|| There is scarcely any doubt, that Kadphises was a near predecessor of the Kanerkis. His relation to Kadaphes is more obscure. It is clear, that Kadphises has some reference to him, save that the former is more ancient, because he is immediately connected with Hermaios. This king (or the last of his name) was limited to Beghram, and this must have been the principal seat of Kadaphes, though his dominions were of further extent. Now it is a singular fact, that according to the Chinese accounts, the ancient (Scythian) empire of Gandhara was situated in Kiapiche (Capissa), and therefore just beyond Beghram, while the native legend expresses the name Kadphises by Kapisa; this is accordingly the name of the country in the form of pronunciation delivered to the Greeks and Chinese, which name, however, appears to be an absorption from Kadphisa. If the name however be a geographical determination, a new enigma is given, and Uhavima must be understood in this case

* R. R. I. No. 22. From Cabul in a tope. R. R. I. 28. II. 4. 56. J. des Sav. p. 390.

† As. Trans. IV. pl. XXXVIII. 4, No. 2, 3.

‡ The same No. 1.

§ As. Trans. p. 631.

|| As. Trans. IV. 631.

as a proper name. But it is at variance with this supposition, that Kadaphes should bear the same name. Or is this perhaps a title, and the same case with the nameless *Sotermegas*.

It would be also desirable to ascertain in an approximative degree the relation of Kadphises to the Scythian Soter family. Yndopherres, like Kadphises, appears to have reigned in Beghram;* but the former is allied to the Parthians, the latter to the first Azes; the first has ruder coins, though a classic style; the second, types of a better, although of entirely Indian execution, with an assimilation to Azes by the Siva-worship, while his relation to Kadaphes places him nearer Hermaios; he appears therefore more ancient than Yndopherres. The only objection would be, that the latter in this case is thrown between Kadphises and Kanerki. If the equestrian coins allude, as I presume, to a more westerly country than Gandhara, the solution is perhaps given by the conjecture, that Yndopherres and the Soters, closely allied to him, reigned as horsemen in a more westerly direction than Kadphises and Kanerki; they might therefore rather be placed near either of them, than between them; but I willingly abandon this uncertain base of argument.

It will be proper to look out for firmer grounds upon which we may classify the many dynasties, above enumerated.

§ 15.

Greco-Bactrian Kings.

Let us turn now to the examination of the written accounts of the history of the Greeks in Bactria. Bactria continued under the dominion of the Seleucides to the period of Antiochus II. (262—247. B. C.) when Theodotus took advantage of the weak government, and probably of the wars of that monarch with Ptolemy II. to render himself independent. This separation of Bactria from the monarchy of Antiochus happened a short time before the declaration of independence by the Parthians, or previously to 256 B. C. as appears from the fact, that Arsaces,

* According to the number of coins, there discovered. *As. Trans.* V. p. 547.

the founder of the Parthian empire, had fled from the increasing power of Theodotus.*

We do not know how far the power of Theodotus extended. Sogdiana was perhaps subjected to him, but it is hardly credible that the thousand towns which Justin attributes to him, to show his power, really existed in his dominions. Bayer plausibly conjectures, that these thousand towns were erroneously transferred by Justin from a notice on Eukratides, to the founder of the Bactrian empire.† The passages show only that Theodotus contrived the conquest of Parthia, while the aggrandisement of the Bactrian power is ascribed to Euthydemus.

In opposition to the explicit authority of these authors, M. Raoul-Rochette has endeavoured to establish Agathokles as the founder of the Bactrian empire.‡ It is true, the eparch of Persia under Antiochus II. is called sometimes Agathokles, and sometimes Pherekles; but our Agathokles reigned in a province of India, and previously to Euthydemus the Bactrian dominion did not extend so far southward.

* Prolog. Trog. Pomp. XLI. "In Bactrianis autem rebus, ut a Diudoto rege constitutum imperium est." Just. xli. 4. On Arsaces: "Non magno deinde post tempore Hyrcanorum quoque regnum occupavit, atque ita duarum civitatum imperio præditus, grandem exercitum parat, metu Seleuci et Theodoti, Bactrianorum regis. Sed cito morte Theodoti metu liberatus, cum filio ejus et ipso Theodoto fœdus ac pacem fecit. Strabo xi. c. 2. p. 515 "Νεωτερισθέντων δὲ τῶν ἔξω τοῦ Ταύρου διὰ τὸ πρὸς ἀλλήλους εἶναι τοὺς τῆς Συρίας καὶ τῆς Μηδίας βασιλείας, τοὺς ἔχοντας καὶ ταῦτα, πρῶτον μὲν τὴν Βακτριανὴν ἀπέστησαν οἱ πεπιστευμένοι, καὶ τὴν ἐγγὺς αὐτῆς πᾶσαν οἱ περὶ Εὐθύδημον." § 3. p. 515. on Arsaces, "οἱ δὲ Βακτριανὸν λέγουσιν αὐτόν. φεύγοντα δὲ τὴν αὐξήσιν τῶν περὶ Διόδοτον, ἀποστῆσαι τὴν Παρθυαίαν.

But there was no long interval between both insurrections. Justin, xii. 4, fixes the defection of the Parthians as under the consulate of L. Manlius Vulso, and M. Atilius Regulus; "eodum tempore etiam Theodotus, mille urbium Bactrianarum præfectus, defecit, regemque se appellari jussit. Quod exemplum sequuti, totius orientis populi a Macedonibus defecere." But who were they, unless the Parthians?

† p. 47.

‡ J. des Sav. 1834. p. 334.

There have not yet been discovered coins of Theodotus and his son of the same name, and they can only come from Bactria.

Whether another king reigned between Theodotus II. and Euthydemus, is unknown, but not improbable; the one fact is certain, that the latter sovereign dethroned the family of Theodotus, for he alleged this very act in order to obtain the favour of Antiochus III.*

Upon Strabo's authority, above mentioned, Euthydemus took possession of the districts adjacent to Bactria; Parthia cannot be understood by this, he must have meant Aria and Margiana; he had at least collected against Antiochus an army of horsemen on the borders of the Arius,† and had already fought against the northern nomades, he must have, therefore, certainly possessed Sogdiana, and to him probably refers the notice, that the Greek kings of Bactria divided their empire into Satrapies.‡

We owe to the expedition of Antiochus against upper Asia, a clearer insight into the circumstances of those countries at that period. This war, and the negotiations between the Syrian and the Bactrian kings belong to the years 208-5. B. C. From Polybios' account, which is extant, it follows, that the Parthian

* Polyb. Fragm. xi, c. 34. Schw. III. p. 379. γεγονέναι γὰρ οὐκ αὐτὸς ἀποστάτης τοῦ βασιλέως, ἀλλ' ἐτέρων ὑποστάντων, ἐπανελάμενος τοὺς ἐκείνων ἐκγόνους, οὕτω κρατῆσαι τῆς Βακτριανῶν ἀρχῆς

† Polyb. x. 49.

‡ Strabo, xi. 11, 2. οἱ δὲ κατασχόντες αὐτὴν Ἕλληνες, καὶ εἰς σατραπείας διηρῆκασιν· ὧν τὴν τε Ἀσπιώνου καὶ τὴν Τουριούαν ἀφῆρηντο Ἐυκρατίδαν οἱ Παρθυαῖοι. Ἔσχον δὲ καὶ τὴν Σογδιανὴν κ. τ. λ. The two satrapies mentioned, evidently lie toward the northerly Scythian country, the frontier of Sogdiana. The Ἀσπασιά-και (Strabo, xi. Scyth. 8.) to whom Arsaces fled, belonged to the Chorasmians and Attasians, who have likewise the name Ἀυγάσιοι; perhaps we ought to read Ἀσπάσιοι. Polyb. (x. 48.) calls all Nomades about the Oxus *Aspasiaces*, which is therefore a general term for the nations of horsemen (*Azpa*, horse). Mr. Burnouf undoubtedly explains with propriety Turiana by the word of the Zend Tûirja; it is the Turan of Firdusis; the Turanian satrapy of Bactria, according to Strabo.

empire, at that period, was still limited to Hyrcania and Parthia, and the Scythian nomades to their northerly heaths, though even menacing invasion. Among the conditions of peace occurred likewise the following stipulation,—that Euthydemos was to surrender his elephants; hence we may presume, that although he had made no expedition on the south beyond the Caucasus, yet, he must have entered upon connexions with India. At that time he had not yet a firm footing southward of the mountains, as we find there the king Sophagasenon, who concluded an alliance with Antiochus, delivered over to him some elephants, and agreed to pay him a certain sum of money. The Indian king apparently engaged in this league as a protection from Euthydemos, whose power had already manifested itself in the south of the Caucasus. As it is called a renewed treaty, this Indian king must have belonged to the dynasty of the Palibothrian princes, who had always been in friendly relations to the Seleucides. We can indeed prove hereafter, that from the time of Seleukos Nikator, those Indian kings possessed the country west of the Indus to the Caucasus,* and hence it arises, that the Bactrian kings, down to the time of this peace, had no possessions in the south of the Caucasus, and only when Antiochus entangled himself in disputes with Egypt, and thereby with Rome, were they at liberty to engage in plans for an invasion of India; that is therefore about the year 203 B. C.

Antiochus effected his retreat through Arachosia and Drangiana, and there is no reason to doubt, that both countries were still under the dominion of the Seleucides.†

Demetrios, the son of Euthydemos, then a youth of remarkable beauty, had a principal share in concluding the peace with Antiochus, whose daughter was given him in marriage.

This Demetrios however is afterwards not mentioned as king of Bactria, but of India (“Demetrii regis Indorum”‡)

* De Pentap. Ind. p. 42—45.

† By the notice, that Seleukos had also yielded Arachosia to Kandragupta, we have certainly to understand but the district eastward of the sources of the Helmund and the Lora.

‡ Justin. xli. 6.

fighting with Eukratides for the dominion of Bactria, and eventually conquered and deprived of India by this king. We do not know, whether he originally succeeded his father in Bactria, and was expelled from thence, and limited to his Indian possessions, being eventually deprived of them also, or whether some one embraced the opportunity of his absence from Bactria, while he was perhaps engaged in an expedition against India, after the death of his father, to take possession of the Bactrian throne.* Nor do we know, whether Eukratides or a predecessor of his, expelled the family of Euthydemos from Bactria.

The opinion which most naturally suggests itself is, that Eukratides expelled them; up to this time, however, Menandros has been ordinarily considered as king of Bactria before Eukratides, though some say, Apollodotos, probably the son of Menandros, or, lastly, Heliokles, whom we know only from the coins. The opinions maintained as explanatory of these different successions to the throne of Bactria, must exceedingly differ one from another, on account of our defective information; and were we to examine these opinions, it would be evident, that all of them are more or less artificial and forced, and even dogmatical. But instead of subjecting them to a critical review, it will suffice our purpose to refer (Bayer, p. 85—89. R. R. I. 34. II. 33,) to them, and to attempt arranging the facts in the way in which, from our own comparison of the respective passages, and the new results derived from the coins, we think we must needs consider them.

First; the conjecture of adopting three kings in Bactria between Euthydemos and Eukratides, appears somewhat improbable. Menandros is among them, whose reign cannot have been a short one, since we know that he had made great conquests in India, and gained by his justice the general attachment of his

* M. R. R. infers from the coins, that Demetrios, although for a short time, did also reign in Bactria. This conjecture is not improbable, though the conclusion of R. R. does not appear to me to be founded on a firm basis.

subjects. On this fact we have the authority of Plutarch and Strabo.*

Secondly ; the respective passages, more carefully considered, do not render it necessary to consider Menandros as a king of Bactria, but they are rather at variance with this view.

Plutarch makes no mention of Menandros but accidentally; and the great conqueror is so little known to him, that he calls him, “ *one Menandros.*” As now even Strabo, though he had before him the book of Apollodoros of Artemita, the very best authority for this history, does not distinguish in a remarkable manner the separated dominions of the Greeks in India, a fact fully established by the evidence of the coins ; we cannot be surprised, that Plutarch in later days, confounded the separate Indian empire with the Bactrian one. The expression he uses, does not therefore oblige us to consider Menandros as king of Bactria.

Strabo, when summing up in his passage the greatest extent of power on the whole, any where attained by those Greeks who rendered Bactria independent, mentions Menandros as the sovereign who advanced farthest towards India ; but he is not named there as king of Bactria, nor does this follow from a passage conceived in such general terms as this is. If we do not explain this passage as intended to give a general view, but rather limit the facts mentioned to Menandros and Demetrios, they would be considered by Strabo as those that stirred up Bactria against the Seleucides, and who had also possessions in the country of the Scythian nomades ; now the first statement would be false, and the second improbable.

Lastly ; the following passage, (Prolo. Trog. Pomp. xli) “ *Indicæ quoque res additæ, gestæ per Apollodotum et Menandrum, reges eorum. Bactria* was, it is true, already mentioned, but why should this prevent a suspicion, that in such an extract the expression was too concisely given, and that instead of explaining “ *eorum* ” by “ *Bactrianorum,* ” we should not rather supply “ *Indorum* ” from “ *Indicæ* ? ”

* Plutarch de Rep. Ger. p. 821.

Μενάνδρου δέ τινος ἐν Βάκτροις ἐπιεικῶς βασιλεύσαντος, εἴτα ἀποθανόντος ἐπὶ στρατοπέδου κ. τ. λ.

Strabo. xi. p. 516. We shall hereafter examine this passage.

I infer from this discussion, that none of the passages cited necessitate our considering Menandros as a Bactrian king, and still less Apollodotos. It is only certain, that Menandros made great conquests in India; we must therefore have recourse to the coins.

Thirdly; these coins always exhibit Cabulian letters as their symbols, and their places of discovery, moreover, refer to an Indian empire, and we may justly assign Menandros and Apollodotos to the history of the Indo-Grecian kingdoms.*

Now as to Heliokles:—

This king, mentioned by no author, must have his place assigned him on numismatological grounds alone; but different conclusions have been drawn from them by different writers. Visconti, and M. Raoul-Rochette think him earlier than Eukratides; in this case he might be the very same who removed the Euthydemides from the throne, and the epithet, “the just,” might allude to his retributive justice towards the family of the usurper Euthydemus. M. Mionnet takes him for the successor, and even for the murderer, of his father Eukratides. In this case he was perhaps the last Greco-Bactrian king. The numismaticians may settle this dispute among them. There is ample room for him, as well before as after Eukratides, if even *two* Eukratides be adopted.†

* See Mr. Mueller, p. 208.

† Visconti. *Icon.* III. p. 253. *R. R.* II. p. 20. p. 26. Mionnet VIII. p. 470. *M. R. R.* concedes (p. 20) that Heliokles was coeval with his Eukratides II.; but supposing now, that there were *two* Eukratides, or say even, there were only one, how can Heliokles, who has no claim whatever to having possessed any empire save Bactria, have been coeval with Eukratides, unless he were his immediate predecessor or successor? The numismatological reason for assigning to Heliokles an earlier era, seems not to be very evident, as *M. R. R.* does not mention any certain fact. Visconti's inference, drawn from the epithet, is wholly inconclusive. But how can we reconcile, that in vol. II. p. 20, *M. R. R.* should make Heliokles a contemporary of Eukratides, while in vol. I. p. 33, he is considered the successor of Demetrius, predecessor of Antimachos, and pre-predecessor of Eukratides I? *M. Mionnet* explained the epithet of Heliokles, by the passage of Justin, in which he prides himself on the murder of his father as of a good deed. If he were indeed the son and successor of Eukratides, this interpretation of

However Demetrius may have been deprived of the Bactrian throne, it is established, that he founded an Indian empire; thence attacking Eukratides in Bactria, he was conquered by this king, who then took possession of India also.*

Let us first settle where we have to look for the empire of Demetrius. Strabo, in the passage where he takes a general view of the conquests of the Greek kings, mentions two of them, Demetrios and Menandros, as the greatest conquerors. These conquests included partly Ariana, by which Strabo means the country of the Paropamisades, Arachosia, and Gedrosia; and partly countries to the north of Sogdiana. The mention of the Serians does not lead us to *China*, as has been objected to that reading, but to the *Issedon Serica* of Ptolemy, on the borders of the Achardus, whether it be Yarkiang or Kaschgar, and where indeed is the improbability of this supposition? This is the construction of the geographer, Dionysios (p. 752,) *Καὶ Τόχαροι, Φρούγοι τε, καὶ ἔθνεα βάρβαρα Σηρῶν.*" These conquests lastly included districts towards India, and this in two directions, in India Proper, beyond the last river reached by Alexander, beyond the Hyphasis to the Jumna, and down the Indus to the sea, comprising the Delta of Pattalene, and further to the east Surastra or Guzerate, extending along the shore.†

the epithet would be most acceptable, were it not wholly preposterous; for M. R. R. says, (II. p. 20.), "Cette idée est si extraordinaire, qu'elle ne comporte pas une discussion sérieuse. Jamais en aucun temps et dans aucun pays du monde on n'a bravé l'opinion publique, ni outragé la raison et l'humanité au point de prétendre couvrir un parricide par le titre *Juste*." I however will not venture "tantas componere lites." It affords me extreme pleasure to learn, that the science of Numismatics is the only one which does not submit to force, and pay homage to crime, that it has even necessitated such an abominable monster as the son and murderer of Eukratides to preserve upon his coins, that respect for public opinion, which he elsewhere so boldly violated!

* Justin. xli, 6. Strabo xi. 1, p. 516.

† Τοσοῦτον δὲ ἰσχυσαν οἱ ἀποστήσαντες Ἕλληνες αὐτὴν (Bactria) διὰ τὴν ἀρετὴν τῆς χώρας, ὥστε τῆς Ἀριανῆς ἐπεκράτουν, καὶ τῶν Ἰνδῶν, ὡς φησιν ὁ Ἀπολλόδωρος ὁ Ἀρταμιτηνὸς, καὶ πλείω ἔθνη κατεστρέψαντο ἢ Ἀλέξανδρος, καὶ μάλιστα Μέ-

It has not been noticed, what direction the conquests of Demetrius followed; those of Menandros, it is said, were directed against India Proper. But who then conquered Ariana? Who Pattalene? Who the country of the Serians? Strabo makes no distinctions there, and the last country at least, could have been hardly conquered by Demetrius or Menandros, though we must probably ascribe the conquest of Pattalene to either of both kings. But to which?

·νανδρος. εἶγε καὶ τὸν Ὑπασιν (edd.---νιν) διέβη πρὸς ἔω, καὶ μέχρι τοῦ Ἰομάνου (edd. Ἰσάμου) προῆλθε, τὰ μὲν γὰρ αὐτὸς, τὰ δὲ Δημήτριος ὁ Εὐθυδήμου υἱὸς τοῦ Βακτρίων βασιλέως. οὐ μόνον δὲ τὴν Πατταληνὴν κατέσχον, ἀλλὰ καὶ τῆς ἄλλης παραλίας τὴν τε Σαριόστου (or Σαραύστου) καλουμένην, καὶ τὴν Σιγέρτιδος βασιλείαν. Καθ' ὅλου δὲ φησιν ἐκεῖνος τῆς συμπάσης Ἀριανῆς πρόσχημα εἶναι τὴν Βακτριανήν. Καὶ δὴ καὶ μέχρι Σηρῶν καὶ Φρυνῶν ἐξέτειναν τὴν ἀρχήν. The alterations Ὑπασιν and Ἰομάνου, "are perhaps necessary." τε Σαριόστου occurs together with Τεσαριόστου in the manuscripts. Mr. Prinsep (*As. Trans.* VI. p. 390) first noticed, that by this *Surâshtra* was to be understood. Apollodoros has perhaps mentioned a king, who was named after his country, as Taxiles was already before named in the same manner. Ptolemy has *Συραστρήνη*; according to him, it is the country between Cutch and the river Mahi, therefore Guzerate, Sigertis (in Sanscrit perhaps *Srigarta*) must be the coast round Barygaza; Ptolemy has, on the south of the Nerbudda, the town Siripala (*Sripala*) which perhaps denotes the same name. In Sanscrit this coast has the name of *Lata* (pronounced *Lara*) whence the *Larice* of the ancient authors.

"It is also called *Surashtra*, and its inhabitants *Surashtras*, the royal and excellent royal offspring. Another name for it is *Gurjjara-rashtra*, or kingdom of the *Gurjjaras* or *Gurjjas* in conversation. Hence it is called the country of *Gourz* or *Giourz* by one of Renaudot's Musalman travellers in the ninth century. From *Surashtra* and *Gurjjara-rashtra* they have made, in the spoken dialects, *Surat*, and *Gurjjarat*, and even *Gujjerat*." *Essay on the ancient Geography of India*, M.S.S. No. 277. Library As. Soc. of Bengal.

(To be continued.)

Abstract Report of the Proceedings of the Committee appointed to superintend the Boring Operations in Fort William, from their commencement in December, 1835, to their close in April, 1840.

Several attempts have at different times been made to supply the deficiency of good water in Fort William, by boring through the strata on which it stands, in search of subterranean springs. The present operations, which form the most recent of the series, were originally commenced in December, 1835, but the site then selected was shortly afterwards abandoned in consequence of the operations having been impeded by a dislocation of the joints of the metallic tubes lining the bore. As all attempts made to rejoin the dislocated tubes proved unsuccessful, the Committee selected a new locality closely adjoining, however, to that of the original bore, no advantage being anticipated from any change of site within the limits of the Fort, the succession of strata, and the circumstances of their disposition, being alike within so small a space.

On the 2nd of April, 1836, the operations of the Committee were resumed, by commencing the excavation of a shaft, ten feet in diameter, ten feet in depth, interiorly rivetted with good masonry, and having its bottom strongly planked, with masonry continued over the planking. A boarded floor with a central trap door moving on hinges so as to admit of access to the shaft, as occasion might require, covered the top. A large gin (Sketch No. 1) filled with the necessary tackling for working the rods and tools, and having a wooden platform supported by massive timber uprights, on which a heavy weight of guns was placed to give the requisite stability, was erected over the shaft. The rods, &c. were originally worked with ropes, but the expenditure of these became so serious as to lead to their being replaced by strong chain cables, which were found in every respect superior. Two chains attached to the ring of a brace-head passed subsequently through a triple block fixed to the apex of the gin, and were then led to two powerful crabs, firmly bolted to large fixed sleepers, at about fifteen or eighteen feet from the gin. A chain was attached to each crab, and on the screw of the upper rod being entered into the brace-head, the crabs were worked simultaneously, and the power of both thus brought to bear in raising the mass of the rods, or in any other necessary manner.

On the 28th of April the actual excavation of the bore was commenced with a six inch auger, being that adapted to the tubing it was intended to employ. On the depth of 120 feet being attained, the quicksand, which had rendered the first attempt abortive, was again met with. The experience of its previous effects had rendered apparent the necessity of securing firmly the joints of the tubes, which was accordingly done by means of four short, but strong screws, in the manner represented in sketch No. II. To this precaution the success of the work so far was undoubtedly to be attributed, as the difficulties were found most serious from the loose, even semi-fluid, consistence of the sand, which on the removal of a portion of the water, then standing in the tubes within 15 feet of the surface, immediately rose to seventeen feet, and though the work was continued night and day, actually rose faster than its removal could be effected, so that at the end of eleven days and nights of incessant toil, it had risen from 124 to 103 feet.

Hence it became evident, that the only mode of overcoming the obstacles presented by the sand, was to force the tubes down till coming in contact with some firm stratum, the sand should be excluded; by unrelaxing perseverance and much labour, frequently with an advance of not more than a few inches in the day, the tubes at length attained a depth of 157 feet. The sand was then perceptibly gained upon, and at 159 feet a stiff clay was reached, and the borer which during the prevalence of the sand was always behind the tubing, now passed it, and in twenty-four hours attained a depth of 175 feet.

The open auger it was found could not be used with effect except in working through clay; a valved instrument, therefore, called the "Mudshell," had hitherto been employed for raising the sand. This tool however here became useless, from some defect in the action of the valve, which failed either to admit or retain the sand, now coarse and gravelly, and in consequence it was found impracticable to penetrate with it beyond 175 feet. One of the augers however being fitted with a valve, and otherwise altered so as to retain the sand, was employed with partial success, but not to an extent sufficient to prevent the sand rising in the tubes, since after working twenty-one days, and the tubing having been forced down to a depth of 177 feet 2 inches, it was found impossible to work the auger

lower than 167 feet 10 inches ; occasionally a partial advance was made, but it was neither permanent nor certain, from the constant variation of the height of the sand in the tubes.

On entering the stratum of stiff clay, above alluded to, the night-work had ceased, but it was again found necessary to resume it, as the only means of overcoming the existing difficulties. The effect of this was to carry the bore successfully to a depth of 182 feet 8 inches by the 27th of July, when a temporary suspension of the operations took place, from the supply of rods having become exhausted. It may be mentioned, that for some days prior to this date considerable inconvenience had been experienced by the stoppage of the borer, both in its ascent and descent, by some obstacle, the nature of which could not be ascertained. Had it been constant in its position, it might have been anticipated that the tubing had again been dislocated or forced from the perpendicular, but so far from this being the case, the borer occasionally descended and was brought up without the least difficulty ; this temporary intermission was followed by the re-appearance of the impediment ; again it intermitted, and latterly disappeared altogether.

A further supply of the rods having been obtained from Delhi, the boring was resumed on the 13th October, 1836.* During this interval of suspension, however, it was found that the tubes had

* The following singular circumstances connected with these Delhi rods, may here be placed upon record, though it has been found impossible to obtain any satisfactory explanation of their origin or cause.

1000 feet of rods, in lengths of 20 feet each, were received from the Court of Directors at one time ; 500 feet of these were taken indiscriminately for the Fort Operations, and the remaining 500 feet were forwarded to the Magazine at Delhi. On the occasion of the supply in the Fort becoming exhausted, a portion of those sent to Delhi were called for, and 200 feet were in the first instance received, subsequently followed by the remaining 300. On working the two sets together a remarkable difference was observed between them. Under equal strains the rods obtained from Delhi twisted and bent with the utmost facility, while those employed in the Fort operations continued rigid and straight, so that ultimately the latter alone could be used in the daily work, the others being laid up in store as useless. Had this flexibility been confined to a portion of the Delhi rods, it might have been explicable on the supposition that some flexible rods had been intermixed with the rigid ones, but it was equally observable in the whole 500 feet of them, so that this explanation can scarcely be admitted, especially when it is remembered that in the first instance no sort of selection was employed. The strength of the Delhi was however considerably greater than that of the Fort rods, the former bearing a strain of 19.6 tons on the square inch, without breaking ; while the latter yielded to a strain of 16.2 tons per square inch.

sunk by their own weight from 183 to 187 feet, and the bore could now be worked to the depth of 189 feet. By the 10th November following, a depth of 238 feet 5 inches had been attained, the chief difficulty in prosecuting the work arising from the imperfect action of the instrument employed in raising the sand, in consequence of which the whole contents of the shell were frequently removed during its passage to the surface. To the construction of the valves of such instruments, much attention ought therefore to be paid, as on the effective action of these, the progress of the operations is most essentially dependant.

On the 15th November, an attempt was made to bring up some water from the bottom of the bore by lowering a bottle with a large brass plummet attached to it, to cause it to sink; but unfortunately before it could be raised, the connecting string broke, and the plummet was left below. Considerable anxiety was excited by this, from the anticipation (subsequently realized) of the auger coming in contact with the plummet, and being jammed within the tubing. On arriving at the depth of 271 feet, the lower part of the mudshell, including the valve, from some unknown cause broke off, and remained at the bottom of the bore. This accident caused much trouble, but after various attempts to extricate the fractured shell, the perforation of an aperture in it, by the use of a jumper, admitted of a strong conical worm auger being screwed into it, and by the hold thus obtained, it was successfully raised to the surface.

At the depth of 324 feet the borer came in contact with the long lost plummet, and became so firmly jammed between it and the tubing as to foil every effort made for its extrication, though the force applied at one time was so great as to raise the whole body of the tubing about 4 inches, the weight of this being certainly not less than $7\frac{1}{2}$ tons, exclusive of friction. To guard against the inconvenience of an accidental fracture of the rods at any considerable distance beneath the surface, while they were subject to such strains, Captain Thomson of the Engineers suggested that the uppermost rod should be made *thinner* and *weaker* than those within the bore (so as to give way first) but yet capable of bearing a strain of 25 tons. The force subsequently applied caused the rods however to break at their connection with the mudshell, and though they were all brought

up, the tool remained below. A new operation therefore became necessary for extracting the shell, and first the upper portion of it was considerably widened by the use of a jumper. A drill was then introduced, and after several day's labour a hole, sufficiently large to admit of the conical worm auger being screwed into the shell, was drilled. The entire shell was immediately brought up, bearing ample indications of having been in contact with the plummet, but leaving it still at the bottom of the bore.

On the first of October, 1837, the depth attained by the tubing was 431 feet, while the depth of the bore varied from 418 to 426 feet, according to the height of the sand. The water stood from ten to twelve feet from the surface, according to the seasons. By the 30th of April, 1838, the bore was 460 feet deep, and by the 18th September following, a total depth of 481 feet was reached. Just prior however to that depth being attained, the progress of the tubing was arrested by large stones requiring the use of the jumper. By its aid the tubing was again set free, but at 481 feet again arrested, and a repetition of the employment of the jumper became necessary. As the tool originally employed proved insufficient to fracture the stones then met with, a larger and heavier one was attached to the rods, and after a few blows, seemed to have effected its purpose; but on attempting to raise it again it was found to be so firmly jammed that every attempt at dislodging it proved fruitless. A great power was simultaneously applied to raising the rods, and forcing down the tubes, but with no other effect than the perceptible elongation of the former. About 150 blows of a ram, weighing $2\frac{1}{2}$ cwt., with a fall of fifteen feet, were then given to the head of the rods, in the hope that the vibration thus communicated to them would tend to loosen the jumper from its hold. The large accumulation of sand over the tool and round the rods rendered it however problematical if the vibrations ever reached the jumper; and if they did, there can be little doubt that the above cause tended most materially to diminish their intensity, as no useful result followed the trial of this experiment. Again, and as a final effort, the tubing was securely held down, and four powerful jack-screws were applied to raise the rods, which after stretching two feet six inches, and thereby affording a gleam of hope that the difficulty was vanquished, unfortunately broke off at

one of the connecting joints, 160 feet from the surface, the remaining 320 feet attached to the jumper, being left within the bore.

Under these circumstances the only hope of being able to continue the operations lay in the practicability of unscrewing and raising the rods, and this after much difficulty was at length so far satisfactorily effected by the use of an ingenious instrument designed by Captain John Thomson, that 290 of the 320 feet of the rods were successfully extracted. This instrument consisted of three steel arms rivetted to an iron bell, in the manner shewn in sketch No. III, and subsequently welded to the end of the undermost boring rod. The interior surfaces of the steel arms were cut in grooves so inclined, that on the head of the rod to be extracted being grasped within them, and a rotatory motion communicated to the instrument from above, the teeth cut into the soft iron, and by the hold thus obtained, the unscrewing and raising were effected. The bell acted as a guide, and was made of diameter just sufficient to admit of the instrument being readily worked within the tubing. It became necessary to pass iron pins through all the connecting joints of the rods, otherwise the rotatory motion would have unscrewed them.

On the 16th of February, 1839, the instrument above described was again successfully employed in unscrewing twenty feet more of the fractured rods. After this a single rod, only ten feet in length, remained attached to the jumper, and repeated attempts were made to effect its extrication, till at length during one of these, its joint unfortunately broke off, leaving the difficulty greater than ever. The only remedy which presented itself, was to construct a second instrument of which the steel arms would be long enough to lay hold of the shoulder strap in the centre of the rod. This instrument, after several unsuccessful attempts had been made with it to unscrew the broken rod, also gave way, the upper part appearing with one arm attached to it, while the other two arms attached to the bell remained below. By the use of the conical worm auger the broken instrument was occasionally raised as high as thirty feet, but the hold of it could never be retained to any greater height, some obstacle to its further progress upwards invariably meeting it there, and effectually preventing its removal.

From the 10th to the 15th February, 1840, the work was prosecuted night and day without intermission, as a final effort to remove the sand which had accumulated over the broken instrument, rod, &c. and thus to admit of another tool (designed by Sergeant Longhurst, Sappers and Miners) to be used with greater facility. This tool shewn in sketch No. IV. consisted of an iron rod with four strong palls attached to it, and so constructed, that while the tube was passing down the tubing, or within the bell of the broken instrument, they lay close to the rod, but on its passing completely through, they moved on their axes and caught underneath the tubing or bell, so as to give fulcrum for the force from above to act upon. In this instance, however, as before, the attempt terminated in disappointment, for though the broken instrument was occasionally raised a few feet, every exertion failed in raising it to the surface.

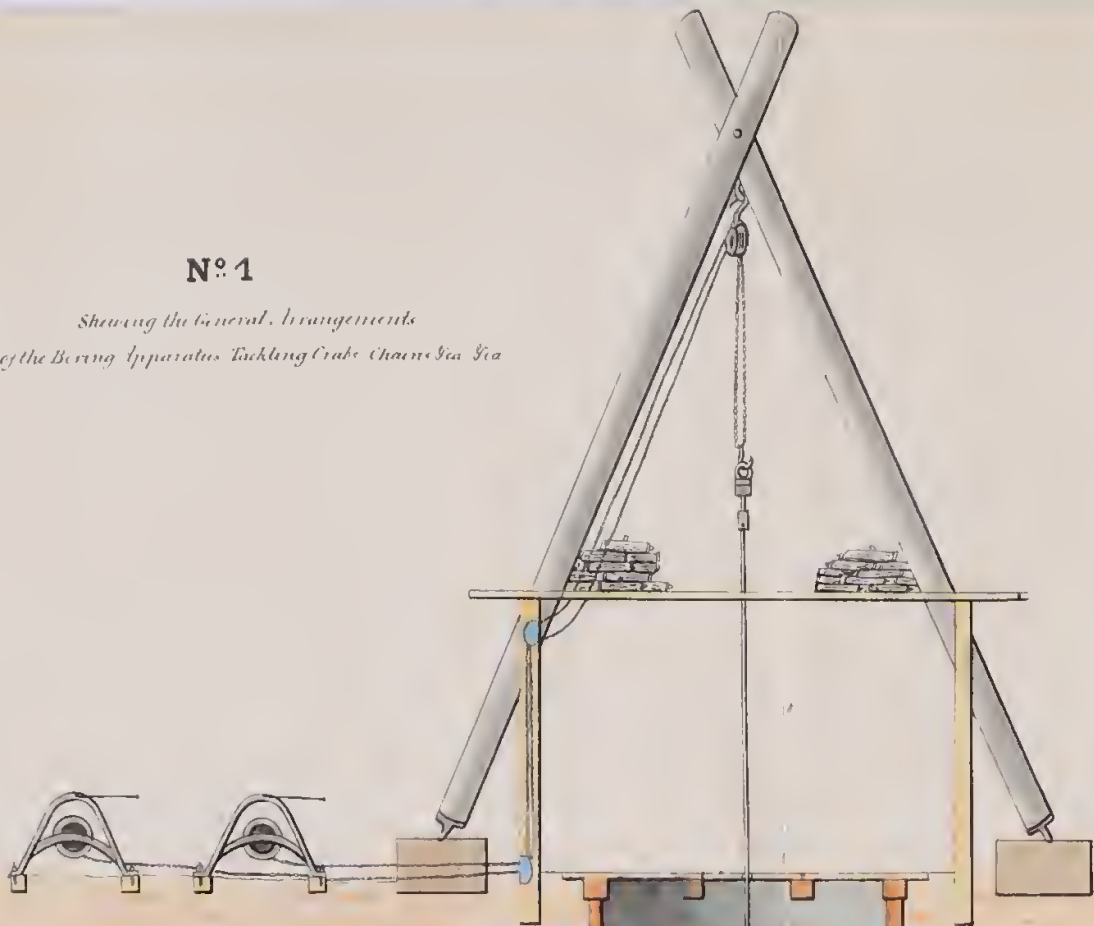
A long continuance of unceasing exertion on the part of those employed having thus proved insufficient for the removal of these obstacles, the Committee considered it their duty to discontinue, and were on the eve of communicating to Government their unanimous opinion that a further prosecution of the boring operations would only be incurring expense, for which there was no prospect of any adequate return, when it was suggested to them that some good effect might result from the explosion of a charge of powder, contained in a water-tight case, in the immediate vicinity of the broken tool and jumper. The Committee deeming it possible that the concussion thereby caused might loosen the hold of the jumper, or fracture the broken tool, so as to admit of its fragments being raised to the surface, and willing to adopt any expedient which promised them the power of continuing their labours, determined to make the proposed experiment. There was reason to believe that the steel arms of the lifting tool were considerably expanded and in contact on each side with the tubing, it was therefore desirable that the powder should be lodged within the arms, so that they at least might be broken in pieces by the first explosion. With this view a strong tin case, carefully soldered and terminating in a pointed extremity, was prepared for the reception of about 15 lbs of powder, but preparatory to charging it for explosion it was filled with dry sand, firmly plugged up, covered with water-proof composition, and lowered to the bottom of the bore. On raising it

again, the original cylindrical case was found to have been compressed by the water, into the shape of an octagon, acute ridges, about $\frac{1}{4}$ of an inch in height, alternating with the flattened sides (sketch No. V.) The pressure had ruptured the tin at the edge of the top of the case, and the sand was saturated with the water. A double case was then constructed, having interior cross pieces to strengthen it, but a similar result to the preceding followed the lowering of this, and for it also the pressure (upwards of 5,000 lbs.) was found too great. A cylinder of wrought iron was then prepared, and on sending it down the bore it was found so far capable of resisting the pressure of the water as to retain its shape, but the sand was still damped. Since however the water had only partially wetted the sand, it seemed probable that additional care in soldering and in applying the water-proof covering might exclude it altogether, and accordingly it was determined to make the first attempt with this wrought iron case.

The depth of water being about 465 feet, the galvanic battery was of course the only igniting agent which could be employed; and the following are the details of the arrangements adopted. A wooden plug was turned somewhat larger at one extremity than the collar of the cylinder into which it was subsequently to be driven. On opposite sides of this plug, grooves were prepared for the reception of the interior conducting wires. Considerable difficulty was experienced in making the grooves perfectly impervious to water under great pressure, in consequence of the wires being twisted, but ultimately the following means were employed with entire success. The grooves were first filled with fine Europe sealing wax, and the wires being previously made very hot, were forced into and completely imbedded themselves in it. Subsequently a red-hot iron was held near the wax of each groove, till it boiled freely, and a strip of wood was then forced in over the wire so as effectually to close every aperture. The interior extremities of the wires were as usual connected by a short piece of thin platinum, in contact with which a cartridge of dry fine powder was placed. The main conducting wires were one-sixth of an inch in diameter, and their entire length was nearly 1003 feet. As the bore was lined to the bottom with iron tubing, it appeared essential to insulate the conductors as perfectly as possible, and each wire was accordingly first cased in hempen

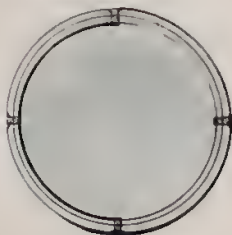
Nº 1

*Shewing the General Arrangements
of the Boring Apparatus Tackling Crabs Chains Sea Sea*



Nº II

*Shewing the Method of fixing the Joints
of the Tubes*



Nº III

*Steel Armed and Toothed Rod Lifting
Tool (by Captain Thomson)*



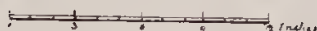
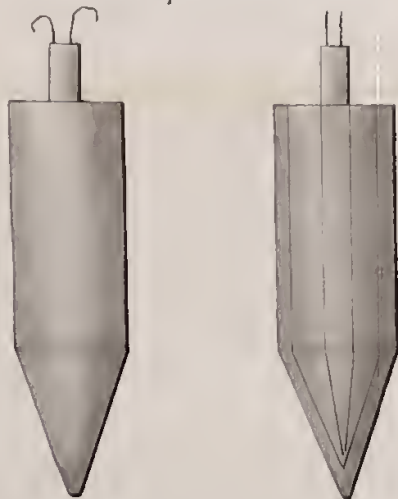
Nº IV

*Rod Lifting Tool with moveable Balls
(by Sergt Longhurst)*



Nº V

*Shewing the Cylinder in its Circular
and compressed States*



Engraved by Messrs. Dill & Co.

Nº VI

*Section of the Cast Iron Cylinder shewing the disposi-
tion of the Interior Conducing Wires &c &c*



2nd Edition 1860

strands, over which a thick coating of pitch and grease was applied, and then the two wires were lashed together by similar strands, and again covered with pitch and tallow. A single rope, about an inch in diameter, was thus formed, and on immersing the whole in water, its action was tested, and a battery of twelve indifferent plates sufficed to effect the ignition of powder.

On the charge being placed in the cylinder, and the platinum wire protected by means of a small tin priming tube, the plug was driven into the collar. Over it, and for the purpose of preventing the water forcing its way through the wood, a tin cap, having two holes for the conducting wires to pass through, was carefully driven down and soldered. In order to prevent this cap establishing a metallic communication between the wires, and thus preventing the passage of the galvanic fluid to the platinum wire, the diameter of the apertures for the wires was made considerably larger than that of the wires themselves, and the top of the plug covered with sealing wax. The application of a red hot iron melted the sealing wax, and on the cap being driven down it rose through the apertures and formed an insulating collar round each wire. These arrangements being complete, and the battery of 24 cells, 14 inches \times 14 inches, in action, the main conductors were connected to those of the cylinder, and the insulating covering continued over the junction, when the cylinder was lowered to the bottom of the bore. On its reaching this, the circuit was completed, but no explosion followed, and on examination it was found that from the smallness of the priming tube the platinum wire had come in contact with the metal, by which of course its ignition was prevented. It was also found that though the priming powder was dry, the water had reached the main charge, and completely spoiled it. Further precautions being taken, several attempts were made, but all with the same result, and it became evident that the wrought iron case could not be rendered water-tight. Recourse was then had to casting a cylinder of iron half an inch thick throughout, and on trial this was found to be perfectly capable of resisting the pressure of the water, and preserving the charge dry. The first attempt with this failed from some unascertained cause, and as it was thought possible that some portion of the conductor might have come in contact with the iron tubing, an additional covering of lashings, with pitch and grease, was applied for a second attempt.

This also failed, and unfortunately in raising the cylinder, to endeavour to discover the cause of failure, the lifting rope gave way, and it became necessary to haul on the conductor. This had been done once or twice before, without any bad effects, but on this occasion the junction of the wires at the collar of the cylinder was not sufficiently strong to bear the weight, and the case after being raised for some distance dropped back to the bottom of the bore. All hopes of benefit from this expedient being thus summarily disappointed, it only remains to be stated, that the operations of the Committee were finally closed on the 20th of April, 1840.

Throughout the course of the preceding narrative, all reference to the geological information the labours of the Committee have been instrumental in eliciting, has been avoided, from a desire to render the mechanical details as continuous as possible, but as few such opportunities as the present have ever been given for observing the structure of alluvial DELTAS, a condensed summary of the various points of interest to the geologist is now appended.

After penetrating through the surface soil to a depth of about ten feet, a stratum of stiff blue clay, fifteen feet in thickness, was met with. Underlying this was a light coloured sandy clay, which became gradually darker in colour from the admixture of vegetable matter, till it passed into a bed of peat, at a distance of about eighty feet from the surface. Beds of clay and variegated sand, intermixed with kunkur, mica, and small pebbles, alternated to a depth of 120 feet, when the sand became loose, and almost semifluid in its texture. At 152 feet the quicksand became darker in colour and coarser in grain, intermixed with red water-worn nodules of hydrated oxide of iron, resembling to a certain extent the laterite of South India. At 159 feet a stiff clay with yellow veins occurred, altering at 163 feet remarkably in colour and substance, and becoming dark, friable, and apparently containing much vegetable and ferruginous matter. A fine sand succeeded at 170 feet, and this gradually became coarser and mixed with fragments of quartz and felspar to a depth of 180 feet. At 196 feet, clay impregnated with iron was passed through, and at 221 feet, sand recurred, containing fragments of limestone with nodules of kunkur and pieces of quartz and felspar; the same stratum continued to 340 feet, and at 350 feet a fossil bone, conjectured to be the humerus of a dog, was extracted. At 360 feet a

piece of supposed tortoise shell was found, and subsequently several pieces of the same substance were obtained. At 372 feet another fossil bone was discovered, but it could not be identified, from its being torn and broken by the borer. At 392 feet a few pieces of fine coal, such as are found in the beds of mountain streams, with some fragments of decayed wood, were picked out of the sand, and at 400 feet a piece of limestone was brought up. From 400 to 481 feet fine sand, like that of a sea-shore intermixed largely with shingle, composed of fragments, of primary rocks, quartz, felspar, mica, slate, limestone, prevailed, and in this stratum the bore has been terminated.

In conclusion, the Committee have much pleasure in acknowledging the valuable aid derived by them on many occasions of difficulty from the advice and ingenuity of Captain J. Thomson of Engineers; and they desire also to express their entire approval of the zeal and intelligence uniformly displayed by Sergeant Thomas Longhurst of Sappers and Miners, during the whole time he was in charge of the details of the boring operations.

FORT WILLIAM,
Chief Engineer's Office,
May 15th, 1840.

D. McLEOD *Col. and Presdt.*
A. IRVINE, *Major.*
F. P. STRONG.
W. R. FITZGERALD.

P.S.—Since the above Report has been signed by the Members, I have recollected a most unintentional omission, for which I am entirely responsible, and which I am therefore desirous of supplying.

It is due to Lieutenant Richard Baird Smith of Engineers, to state that he has not only taken a great interest in all our proceedings, but has rendered great assistance in carrying them on during the most difficult period of the operations, since he has resided in Fort William; moreover, the employment of the Galvanic Battery to blow up the lower portion of the tubing, &c. was suggested to the Committee by him, and the apparatus applied in that process, as above described, was entirely on his design. I may add, that his intelligence and knowledge of the subject, enabled him to give essential aid in arranging the materials for the above Report.

D. McLEOD, *Colonel,*
Chief Engineer.

Report on a line of Levels taken by order of the Right Honorable the Governor General, between the Jumna and Sutliġ rivers. By Lieut. W. E. BAKER, Superintendent of Canals West of the Jumna.

The subject of inquiry proposed, having been to ascertain the practicability of establishing a water communication for the passage of boats between the Jumna and the Sutliġ; I considered that the best preliminary measure would be to take a cross section, fixing at certain points the relative levels of those rivers and of the intermediate hill torrents, and the greatest height attained by the intervening ridges.

The line (viz., one between Kurnaul and Loodiana) which I selected for this section, was recommended by the following considerations:—

1st. It connects the highest points of both rivers to which boats of considerable burthen habitually resort.

2nd. It lies in a South-east and North-west direction, parallel to that of the Sub-Himalayas, and consequently perpendicular to the general lines of drainage.

3rd. It crosses each of the considerable mountain torrents before its junction with the Cuggur; and, lastly, its length was well suited to the time (about three weeks) to which, having no Assistant, I was obliged to limit my absence from the canals under my charge.

Having no accurate map of the country, I had merely a general idea of the direction from Kurnaul in which I should strike Loodiana, which will account for the deviations from a straight course observable in the accompanying map. My object being to note the general features of the country, I took no pains to avoid merely local inequalities, and my Section therefore exhibits much greater irregularities of surface than it need have done, had I had leisure previously to examine the ground ahead of my levelling instrument. The hollow in the neighbourhood of Puttiala, for instance, might have been in a great measure avoided by a more northerly course.

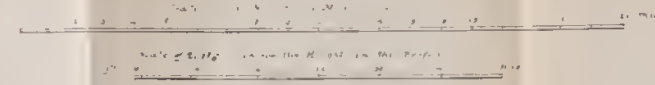
The information thus obtained is necessarily incomplete, and though it has in my opinion proved the practicability of the contemplated measure, it has not furnished data for a detailed project, and still less for an estimate of the probable

Irregularities and inequalities accounted for.

Nature of the information required.

SKELETON MAP and PROFILE of a Line levelled between the JUMNA and SUTLEJ in February 1840

To ascertain the possibility of connecting those Rivers by a Navigable Canal



- 3 Kuning of Kelantan
- 3 Geger-masod
- 3 Kuning
- 4 Pellar
- 5 Pifluk
- 5 Schinambai
- 7 Tineyer Fort
- 8 Alaband
- 9 Tacton
- 10 Indolore
- 11 Andole
- 12 Khingje Khomad
- 13 Shomad
- 14 Alaband
- 15 Parhar
- 16 Khikhar
- 17 Sured Khomad
- 18 Drindon
- 19 Soudak
- 20 Kikah Akber
- 21 Ameran
- 22 Kope-nien
- 23 Sany-Tak



MAP
of
S E I S T A N
and some of the
NEIGHBOURING COUNTRIES

This Map reduced to 1/33 of the Circumference

cost of the undertaking; such as it is, however, I have judged expedient

Why now submitted. to communicate it at once, both as a report of progress, and to enable Government to decide whether or not it be advisable to prosecute the inquiry further.

The cost of the present survey amounts, as per contingent bill,

Cost of the survey. submitted to the Military Board, to Company's rupees 74 : 9 : 0.

In the accompanying Skeleton map and section, I have endeavoured

Reference to the Map to condense most of the information obtained, and
and Section. to show at one glance the result of my inquiry.

In this it will be seen, that from the level of the Jumna to the town of Pahul, near which the greatest elevation (67 feet, 11 inches, 25) is attained, there is a general rise, partially interrupted by the beds of intervening rivers, which may be thus particularized :—

The Chittung — an inconsiderable nulla, has no defined valley. Of

The Chittung river. its surplus waters, spreading out during the rainy season, right and left over the country, but little returns into its contracted channel; and of late years, no considerable flood has reached even as far as Dhatrut, in the Jheend territory, from whence to Buhadera, in the Bikuneer State, the ancient bed of this river is occupied by the Canal of Feroze Shah.

From the ridge dividing the Chittung and the Sursootee, there is a

The Valley of the Sursootee, the Markunda, and the Cuggur rivers. considerable descent to the bed of the latter river, which may almost be said to have already joined the Markunda and the Cuggur at the point where I crossed them. From near Thanesur to

Konaheree, the whole tract of country (with the exception of village sites) is liable to inundation from the Sub-Himalayan torrents, diffused

Their peculiar character. over its surface by means of a net-work of natural and artificial water-courses, of which some are supplied from more than one of the rivers above named; others, again, flow from one river into another, and during great floods (as I was given to understand) all three are frequently united. The inhabitants avail themselves largely of the inundation for rice cultivation, though

Their use for irrigation. during the present season at least, little advantage appeared to have been taken of the facilities afforded for irrigating Rubbee crops, which, where they existed, were

generally watered from Wells. I had not leisure to ascertain, by personal examination, whether the first diffusion of these rivers (which I have

Their diffusion ac- myself seen nearer the hills in single and separate
counted for. streams) were caused by natural or artificial means,

but it is probably attributable to both. The slope and evenness of the country, are calculated to favor even the rudest attempts to divert the streams from their original beds, and the same circumstances would also render it easy, were it desirable, to confine them again to one or two principal channels. What I have designated as the "main branches" of the Markunda and Cuggur, are distinguished from the others, not so much by their superior size, as by the presence of a small thread of running water.

The valley of the Sursootee, Markunda, and Cuggur, such as I have de-
scribed it, though extending to a width of twenty-
Their importance as an obstacle to the Canal. nine miles, would present no insurmountable obstacle to the formation of a navigable Canal across it, though the expense attendant on the provision of the necessary embankments and aqueducts, would be considerable. And on this account, as well as for other reasons, to be noted hereafter, a more advantageous line for the Canal would probably be found further to the south-west, below the town of Sumana.

The river which flows past Puttiala, has a different character from
The Puttiala, or Kosil- the preceding. Its channel at the point where I
la river. crossed it, is so deep, that I could not have supposed its waters would ever be capable of spreading out over the country, had not the construction of an embankment between the stream and the city (said to be for the protection of the walls), proved that it is sometimes liable to overtop its banks. At this point, in consequence of its deep narrow section, it would be easily crossed by a short aqueduct.

Immediately beyond the city of Puttiala, I encountered several ridges of sand, which would most likely be avoidable on another line, but if
Sand ridges. not, it would merely be necessary to puddle the Canal bed throughout their extent, to prevent heavy loss of water by absorption.

The Sirhind Nulla, which I crossed about sixteen miles beyond
Puttiala, flows in one or more channels through
The Sirhind Nulla. a valley 500 or 600 yards in width, having but a

Its character and uses for slight depression below the adjoining country. Its irrigation. flood waters could, with very little labour and skill, be let out by side cuts to inundate the lands lying on its east bank, and I therefore conclude that such a practice is adopted, as the natives of this province are fully aware of the value of that peculiar system of irrigation, which consists in flooding the land once a year.

From the West bank of the Sirhind Nulla to a few miles beyond Sand ridges. Pahul, the land is generally level, but intersected by a few sand hills, one of which, between the villages of Bishnpoor and Kuddoo, may be considered the crest of the ridge, dividing the Jumna from the Sutlij.

From Doorai-ki-Serai westward, the descent is rapid, and the fall

Descent to the Sutlij. appears to be broken in a remarkable manner into steps, ending in an abrupt cliff of 30 feet, on the western continuation of which stands the fort and town of Loodiana. At some former period this cliff was evidently the eastern boundary of the Sutlij, and even yet, as I am given to understand, the waters of that river when swelled by the monsoon floods, frequently reach its base.

The remaining tract of seven and a quarter miles, intersected by Valley of the Sutlij. branches of the Sutlij, is proved by its loose sandy soil, as well as by its topographical position, to be an alluvial deposit of the river; and were the canal to join the Sutlij at this point, it would be more advisable to deepen the Nulla which flows under the Fort, than to make a new excavation through such unfavorable soil.

As my commission did not include an examination of the Sutlij, I Capabilities for navigation near Loodiana. may perhaps not be expected to offer an opinion on its navigable capabilities; but I may be permitted to remark, *en passant*, that the stream near Loodiana appears to have two characteristics decidedly unfavorable to navigation; viz. a sandy Shifting sands. bed, and a considerable fall; a combination of circumstances which cannot fail to produce shifting and uncertain shoals.

With a view of ascertaining the level of springs along the line of my Depth of wells throughout the line. section, I measured the depth of 156 wells between Kurnaul and Loodiana, and the average result is shewn in the profile by blue dotted lines. In this I had two objects; first to ascertain whether, as some suppose, measurements of the level of springs would give data for an approximate calculation of the

profile of a country ; and, secondly, to obtain one element for calculating the amount of absorption in a standing canal, for which it would be necessary to provide a daily compensation. In the former respect my present observations, as well as those made with the same view in other localities, shew that the level of springs is too much affected by the vicinity of streams, the degree of permeability of soils, and other local circumstances, to admit of any accurate conclusion being drawn from them, regarding the profile of the surface. But with reference to the second object of my inquiry, it is satisfactory to find that the wells measured, have generally so little depth, as the waste by absorption in the contemplated canal, will be relatively much less. In illustration of this point I may mention, that in the Paneeput district, where before the introduction of the Delhi canal the springs were from thirty to forty feet below the surface, they are now from fifteen to thirty feet ; whereas in Hurriana the springs have been raised since Feroze's canal was opened, in some instances, as much as sixty feet.

On the accompanying profile I have sketched out what I consider to be a possible section of a still water canal, from the highest level of which, between Pahul and Doorai-ki-Serai, the westward descent of sixty-three feet to the level of the Sutliĳ, is made by means of seven locks ; while to the eastward a descent of thirty and a half feet to the valley of the Markunda and Sursootee, is effected in five locks, after which a partial rise of six and a half feet is necessary to cross the ridge separating these rivers from the Chittung, followed by a descent of thirty-eight feet, by four locks to the level of the Jumna. Water sufficient for the westward lockage, as well as to compensate for waste by absorption and evaporation, could be supplied at the highest level by a cut taken from the Sutliĳ, at the point where it debouches from the lower hills, and conducted along the crest of the ridge ; and on the eastern extremity of the canal, we might obtain water for the same purposes by a water-course from the Delhi canal above Indree. In sketching out this project, I would be clearly understood not to recommend it as an advisable one. The number of masonry aqueducts required here, the necessity for which

Practicability of the measure illustrated by a possible Section.

Water for lockage and wastage, how obtained.

The possible Section not recommended as an advisable one.

Its object. would be obviated by a more southerly course, would alone point out the latter as preferable; but if it can be shewn that the scheme is feasible on a line taken at random, the probable existence of one decidedly favorable, will readily be admitted.

Whether the construction of such a work would be eventually as beneficial to the country as it appears practicable considered with reference to the future trade of the Upper Provinces. as an engineering operation, the Government are doubtless in possession of better information to guide their judgment, than any which I could afford them. At the present time it might facilitate the transport of military stores required for warlike operations westward of the Sutliij, but this inducement will fail whenever Magazines may be formed on the banks of the Indus, and their contents transported by water from Bombay. As regards the public interest, however, the case is different, attention being now so universally attracted towards the shorter communications with Europe, whether by the Mesopotamian route or that of the Red Sea, it cannot be supposed that the use of these means will long be restricted to the conveyance of mails; the more valuable description of merchandise will soon follow, and shipments for Europe will be made from some port to be established near the mouths of the Indus. The North-western provinces of India will abandon the present circuitous route by Calcutta, and send their exports by the more direct one of the Indus, and the deserts bordering the east banks of that river, which will then be the only obstruction, may be turned by the contemplated canal.

Though fully aware of the more than apathy which exists in this country towards any thing involving a change of established usage, and but little acquainted with the nature and amount of produce exchanged between the several provinces of India, yet I can scarce suppose that the community would not avail themselves of the facilities for the circulation of trade, which would be afforded by a communication between two such rivers as the Ganges and the Indus, embracing such an extent of fertile country, and entering the sea at such distant points.

If it be urged that the construction of a canal would be premature before the full establishment of the trade which is to give it employment, I would reply, that the formation, or at least the certain prospect of a canal, would be one

A plausible objection answered.

great inducement to the establishment of trade. No merchant, for instance, would bring European stores to Ferozepore for supplying the stations of Kurnaul, Meerut, and Dehli, with a prospect of 200 or 300 miles of land carriage, rendered peculiarly difficult by the nature of the country, and the scarcity of all means of transport.

Should Government decide on the further prosecution of this inquiry, I beg to recommend for examination the lines tinted blue in the annexed sketch map; that marked *a. b. c.* is calculated to cross the Cuggur below the junction of its tributaries, and to avoid a spur of high land, which I am led to believe, crosses the direct road from Kurnaul to Ferozepore. The line *d. b.* would be that of the supply channel from the Sutliġ.

In conclusion, I beg to state that the field book and original protractions of my survey and levels, on a scale of one mile to an inch, are at the disposal of Government for any purpose.

Memoir on the Hodésun (improperly called *Kolehan*).—By Lieut. TICKELL.

Colonies of people speaking the same, or nearly the same dialect as the Hos, or Lurka-koles of Singbhoom, but of whose customs and history we are ignorant, may be traced from the jungles of Ramgurh (near Hazareebaugh) to the south and southward along Moherbunj, Keonjur, Gangpoor, down to the confines of Buna Nagpoor, where they are distinguished from the Gōnds (in Gōndwana) by the name of "Kirkees." Those colonies described to me by Gōnds are insulated, semi-barbarous, and confined to the wildest parts of that country. The country lying north and north-east of Gōndwana, and west of Gangpoor, and south of Surgoojia, are in all probability inhabited by the main stock, from whence these small settlements have wandered. These regions have never been explored, and are wrapped in the greatest obscurity. We only know that they are traversed by large streams. The Koil, the Hutsoo, the east and west Shunk, and the Brahminee, which flow into the sea, north-east of Kuttuck, or join

the Mohanuddee. The Shunk is said to be navigable above Gangpoor for tolerably large boats, and may therefore be presumed to become a considerable river in its passage to the southward; watered by such fine streams, it is difficult to imagine the whole of those regions, to be mere wastes of jungle, which would not repay the trouble of exploring them. But they must ever remain unknown, so long as the inhabitants retain their primitive habits, and aversion to visiting other countries, and until more enterprising people than the timid Hindoos, settle in their vicinity.

These remarks, vague as they are, may serve to define the limits of this wild and aboriginal race; for beyond the precincts thus roughly sketched, I am unaware of their language extending. It must be remembered that the inhabitants of Chota Nagpoor, although indiscriminately called Koles, are a totally distinct race, having different languages, manners, and origin. These latter, properly named "Oraóus," were the first known inhabitants of Roidâs (Rotâs) and parts of Reewa. Their sudden transmigration across the Soane, and which is ascribed by them to inroads of Hindoos from the vicinity of the Ganges, may be attributed to the expulsion of the latter by their Moohomedan conquerors, but at what precise epoch, it is difficult to determine.

It is these Oraóus who first give us accounts of a people called Moondas, whom they found in possession of Chootia* Nagpoor at the time of their flight into it. They state them to have been a wild people, living chiefly by hunting, and who offered no opposition to the Oraóus settling in the fine open tracts to the northward of Sonepoor, and cultivating lands of which they themselves scarcely knew the value. Being a peaceable, industrious race, the Oraóus gave no umbrage to their hosts, and very shortly after, the entire residue of the immigrants, who had for a time taken refuge in the uninviting jungles of Palamoo and Burhwé, passed over into Chota Nagpoor, where they remained in great harmony together, until the Hindoos came spreading further in, and attracted by the beauty and fertility of the country, by degrees made themselves masters of the soil. A Bramin from Benares, imposed upon the credulous Oraóus, by

* Misnamed "Chota."

trumping up a story about a child, which had been discovered on the banks of a tank at the town of Pittooreea, guarded and shaded from the sun by a Covra, or Nâg, and which he presented to them as their king. This is the present reputed origin of the "Nagbunsees," who to this day are the Rajas of the country; the Raj Gadee, or Paſetukht, was first at Chootia, a town about ten milse south of Pittooreea, from whence the name of the country, "Chootia Nagpoor." What it was called by the Moondas before this event, is not known.

As the Hindoos spread and prevailed, the effect of their tyranny and extortions was to reduce the Oraôus into complete slavery, and drive the Moondas into open revolt. After a long struggle, the latter were compelled to confine themselves to the jungles of Sonepoor to the south, and the wooded slip of land which to the east raises Chota Nagpoor Proper above the rest of Central India. Wandering south-eastward, many settled themselves in the wild hilly tracts, now known as Kœhang, and in the immense jungles and mountains to the south and west of the present village of Porahaut. Numbers passed over into the low country, east of Nagpoor, now comprised in the zemindarees of Rahé Boondoo and Tamar, subservient to Chota Nagpoor, where mixing with the lowest classes of Bhoornijes and Bhooians, (supposed aborigines of Bengal) they merged into a mongrel race, known as "Tamarias;" and a great proportion traversing the hills and forests of Kœhang, passed out eastward, into the open tract now called Singbhoom and the Kolehan.

The last are the subjects of the present memoir.

It appears that the Moondas, or as they now call themselves, the Hos, found Singbhoom on their arrival to be peopled by Bhooians, an inoffensive, simple race, but rich in cattle, and industrious cultivators, who first allowed them to form settlements in the neighbouring woods, and afterwards permitted them to reside in the central open tracts. Here they remained together for some time, when the country appears to have passed into the hands of "Surawuks," a race of Bengalee Bramins, now almost extinct, but then numerous and opulent, whose original country is said to be Sikrbhoom and Pachete. Their arrival produced a repetition of the scenes which had forced the Moondas, or Hos, from Chota Nagpoor. But in the latter instance, the oppressions of the Surawuks ended in their total expulsion from the

Kolehan—in what direction is wholly unknown, though it may be conjectured they retraced their steps, for the name of Surawuk, is now unknown except in Tamar and Pachete, and then only used by the jungle people occasionally in speaking of Bengalees.

The Kolehan continued after this much in its pristine state, and only known to others by its lying in the route of hosts of pilgrims from Patna and Benares, &c. to Juggernath. The lands, broad and fair, excited the cupidity of many of these travellers, but their dread of the Hos deterred all thoughts of settling, until a party bolder than the rest, journeying from Marwar, took up their residence as guests at the house of a Bhooian Mahapattor, or Zemindar, where they remained on various pretexts, astonished the Bhooians with a display of their riches, superior knowledge, and by descriptions of their country; and ended by reproving them for living on terms of equality with a people who were Mlechis, or unbelievers, and as fugitives from another country, should be considered as subservient to them. The Bhooians desirous of having their own Raja, and emulating their councillors, entered into a league with the Marwarees, who procured a number of their countrymen to assist in establishing the supremacy of the Bhooians. In this they were totally unsuccessful, and the result of a long struggle, the details of which are handed down disguised with much fable in the traditions of the Ooria Bramins of the country, ended with the total discomfiture of the Bhooians, and the coalition of the Marwarees with the Hos. The former established themselves in Porahaut and the rich open plains to the northward, now called Singbhoom; the Hos withdrawing from this part occupied the remaining tract of open land, whose limits, described hereafter, constitute the Hodésun, or Kolehan of the Hindoos.

Up to this epoch no dates can be obtained, as the narrators of the above events, Oraós and Hos, keep no account whatever of time. But from the introduction of the Marwaree Singbhunsees, and other Rajpoots who came to settle with them, a regular chronological history has been preserved in the Madela, or records of the Porahaut family; unfortunately I am now unable to apply to these for any information on these points.

It appears that these settlers electing a chief, whom they styled 'Raja,' and took up their abode for five or six generations at Porahaut,

after which a general division was made of the rest of the country the Bhooians had retired to, among the Hissadars or brethren of the Raja; the eldest brother took Anundpoor (or Sumijgurh); the second, Seryekela; and the youngest, Kera. The Raja also gave as pykallee, or service tenures to some of his subordinates, the Talooks of Bundgaon, Khursawa, Koryekela, and Chynpoor; of these Khursawa has become in a manner hereditary and independent.

In process of time the brothers managed to get into quarrels with neighbouring Zemindars; the Gangpoor walla (of Keonjur) and the Baboo of Anundpoor recriminated each other, about mutual depredations committed (by their orders) in their dominions, by the Koles; the Porahaut Raja's pykes harried Sonepoor; the Kera Baboo plundered Tamar and Chota Nagpoor; and the Koonwr of Seryekela and Raja of Mohurbunj found a bone of contention in the little but fertile tuppah of Koochoong, before alluded to.

In these contentions the services of the Hos were brought into requisition; promises of booty lured them into becoming stedfast allies of those chiefs who had won them over, and thus incited, they commenced a series of depredations on the surrounding country, which soon brought them into note. In return for the plunder which they acquired, they were induced to pay rent in the shape of occasional salamees, in different taxes, or "Russoomat," at periods of Hindoo festivals, &c. and the Kolehan was divided into Peers or Pergunnahs, twenty-four in number; of these the Moherbunj Raja through his Dewan at Baumenghattee secured four, viz. Aulapeer, Burburriapeer, Toëpeer, and Lalgurh, placing a Zemindar or Mahapattor in the latter. The Singbhoom Raja, together with the younger branches of his house, allied themselves with the remainder, and this order of things continued until 1831-32, when the Mahapattor of Lalgurh, disgusted with the exactions of the Moherbunj Raja, broke out into open rebellion, which led to a series of such contentions and outrages (especially as the Raja's emissaries artfully induced the ignorant Koles of the Mahapattor to plunder our territories of the Jungle Mehals, and incommode our communications to the westward, by cutting of the dâks) that Government was at length obliged to interfere, and in 1836-37 effectual measures were taken to prevent disturbances of the kind, by taking the Hos under our immediate control, and

withdrawing them from all allegiance to the Rajas of Moherbunj and Singbhoom.

Singbhoom, including the Kolehan, lies between $21^{\circ} 30'$ and 23° north latitude, and 85° and 86° east longitude; it is bounded to the north by Chota Nagpoor and Patkoom; to the east by the Jungle Mehals and Baumunghatte; to the south by petty states, or tuppahs, subservient to Moherbunj, and by Keonjur; and to the east by Gangpoor and Chota Nagpoor. These limits comprise a fine open tract of country, in most parts exceedingly productive, in others stony and barren, and separated from the circumjacent countries, above enumerated, by rocky hills and jungles. Singbhoom Proper consists of an extent of fine open arable land, to the north of the Kolehan, above 45 miles east and west, and about 18 in breadth, comprising the talooks of Khursawa, Kera, and Seryekela, also a portion of similar land, about 20 miles square, to the north-east, called Koochoong, attached to Seryekela, and along the west of the Kolehan, an imperfectly defined extent of mountains and jungles, including Porahaut and Anundpoor.

The Kolehan as now constituted, comprehends a tract of open undulating country, averaging from sixty miles in length north and south, from thirty-five to sixty in breadth. It is divided into two departments by a step about 500 feet high, running east and west across it. The southern part is rich in soil, and beautiful in appearance; but an absence of inhabitants, and proper culture, gives it an air of desolation. This happily is becoming fast remedied by the return of large families of Bhooians, former inhabitants, who had been expelled by the Hos. The lower country north of the step is exceedingly populous, but in many parts stoney and barren. The westerly Peers are situated among hills and vast jungles, containing a few fertile vallies; and Sarnda in the far south, is one mass of mountains, clothed in forests, where the miserable inhabitants, few and solitary, can scarce struggle for mastery with the tiger.

The Peers are twenty-six in number, Anjoodhia, Assuntullia, Anla, Burkela, Burburria or Birwarpeer, Burpeer or Jyntpeeree, Cherye, Chynpoor, Goomwa, Govindpoor, Gopinathpoor, Jamda, Kaïnawa, Kooïlda, Kotegurh, Lota, Natooa, Lalgurh, Purliong, Rajabapa, Oonchdee, Rengra, Rela, Sath Buntria, Toë, and Sarnda.

I unfortunately neglected taking any census of the people, while assessing them, and when I had an easy opportunity of so doing. But the uniformity and simplicity of their mode of living, enables a rough estimate to be formed of their numbers, from the amount of the annual rack rent, which by way of Malgoozaree, has been levied on them, and the calculation I should think would be found on closer inquiry to be pretty near the truth.

The amount of Malgoozaree for 1838-39 was in round numbers	
Co's. Rs. 6,500 at 0/8 per plough,	=13,000 ploughs or men
of these at least $\frac{7}{8}$ ths are married,	=11,375 women,
Average of 3 children to each family,	=33,825 children,
Aged people, mendicants, orphans, &c. $\frac{1}{6}$ th.	= 2,166
	<hr/> 60,366
Gwallas, Taunties, Lohars, & other castes, $\frac{1}{6}$ th=	2,166
Wives of these $\frac{3}{4}$ ths,	1,624
Children 3 to each family,	4,872
	<hr/> 8,662
Ploughs concealed at assessment about $\frac{1}{8}$ th,	1,625
	<hr/>
Total population, =70,653	

The whole of this country is traversed by numerous streams of great beauty, but useless as water carriage, being almost dry in the hot weather, and rapid torrents in the rains. The *Sunjiye* separating the Kolehan from Singbhoom, rises to the north-west of Porahaut, and enters the Kurkye, near the junction of that river with the Soobum-rekha; the Roro, twelve miles south of the former, a narrow, but deep and swift stream, and the Eeleegarra and Toorul still further south, take a like course above the step; the Dés Nye runs westward, and falls into the Kolekaro, near its confluence with the Koil; and near the southern limits of the Kolehan, the different streams take a south and west direction, falling into the Bhundun and Byturnee, which last, running through vast and lonely forests, separates the Kolehan from Jushpoor and Rorwan, in Moherbunj, and Kalkapershaud in Keonjur. There are two water-falls on the borders of the Kolehan, which I have never visited, but which, by the description of the natives, must be well worth seeing. The Bunnye, running between Sonepoor and Singbhoom, is said to roll its waters into a

profound cave, from which spot it pursues its course underground, and is supposed to join the Kole Káro. The fall is called Paraá-ghag, and is a tiruth, but so remote from habitation, and buried in such deep woods, as to be seldom visited, except by the Sonepoor Koles, and Bhooians of Porahaut and Bundgaon. On the confines of Baumunghattee also, is a singular cascade, described to me as a single thread of water pouring down a walllike precipice of 2 or 300 feet in height. It is called by the Baumunghattee Oorias, Muchkandnee Jhurna ; and by the Koles, Hakoo-yâmdah, meaning in either language, "The fall of the weeping fish," from some whimsical story of the fish complaining of the impossibility of scaling the cataract, to emerge from the dreary abyss, through which the stream winds below. The peculiar distribution of the hills in this country, running in parallel ranges, precludes the formation of lakes, which are unknown.

These ranges are not of very great height, the loftiest, which are in Saruda, not appearing above 1000 feet above the plain. They are however intersected in parts by profound vallies, which give the hills, from that side, an appearance of great magnitude. They are chiefly quartz, in all stages of decomposition, permeated by limestone rocks ; smaller detached ranges issuing at right angles to these, are commonly of micacious slate. From Chyebassa, proceeding easterly into Koochoong, are low ridges perfectly parallel, about half a mile to a mile apart, gradually increasing in height till the series is closed by the Choivria hills in Koochoong. They are composed of loose rocks, resembling (if they are not) clink stone ; but the larger ridges are of coarse granite. The northern part of the Kolehan consists in a great measure of sterile plains, scattered with quartz boulders, stones, and pebbles, some crystalized. The beds of the nullahs are a shingle composed of jasper (of all hues) green stone, quartz pebbles, and flint. The bed of the Byturnee is lined with flattened pebbles and lumps of jasper, of bright yellow, red, purple, and black, disposed in parallel streaks, or ribbands, as if artificially inlaid. The corundum is found in great quantities at Juggernathpoor on the upper step of the Kolehan, and several nullahs run through beds of argillaceous earth, from the brightest scarlet to pure white, which are highly in request among the natives. The whole of these streams wash down more or less gold, but the Koles know not how to collect it. In Singbhoom a

tolerable quantity is gathered by Hindoos, but of a third or fourth rate quality, also excellent iron ; of coal I never found any traces.

The open parts of the Kolehan are here and there scattered with a scrub jungle, composed chiefly of the Polass and Assun, on which latter the tusser silk worms are bred. The southern parts, where not cultivated, are covered by extensive plains of grass, interspersed with bushes ; entirely along the west boundary, are forests of saul trees, small and meagre on the hills, but reaching in the low rich vallies to a size perfectly prodigious. In Anundpoor, towards Gangpoor, are tracts covered entirely with the wild plantain, and many of the hills are clothed densely with bamboos. In marshy spots a strong serviceable species of cane or ratan is found. The wild mangoe tree is also very common in these forests, yielding a fruit far preferable to the common kind found in the “ topes” throughout India ; it is small, round, and full of juice, as sweet as honey. The date and palm trees are not cultivated by the Koles, but are to be found near Hindoo villages in Singbhoom ; cheretta, wild indigo, and arrowroot are very common in the jungles. But to enumerate all the beautiful flowers which enrich these green retreats—the fruits and roots, to every one of which the natives attach some specific virtue or harm ; the inexhaustible variety of plants, shrubs and fungi, ferns, creepers, &c. which clothe in all varieties of fantastic imagery the shady dells ; or the cool banks of foliage-canopied streams,—would be a task far exceeding my powers, or the limits of this memoir.

The animals found in the Kolehan are the same as in other parts of central India, but not nearly so abundant as in better watered jungles, besides which the Koles and Oorias are inveterate hunters, and their attacks on game of all kinds are pursued on an exterminating scale (a description of their hunts is hereafter given). The elephant, which is numerous in parts of the Jungle Mehals, comparatively close to Medneepoor, is, strange to say, unknown among the remote and wild regions of west Singbhoom ; the gowér is common in this latter region—two species are described by the natives, a red and a black kind ; the urna, and smaller wild buffalo are very numerous about Anundpoor ; great varieties of deer haunt the hills, the saumúr (*C. rusa*), neelgye (*Dalmalis picta*) spotted deer (*C. axis*) barking deer, or Muntjac (*C. muntjac*), chikerac or four horned

deer (*C. chicquera*), all these species, though so shy when sought after as to be seldom met with, must be tolerably numerous, from the depredations they commit on the fields of gram, boot, moong, oorid, &c. which are planted near the jungles. The *memina*, a species of mouse deer, is also found among rocks, and underwood. The antelope is confined to the wide open plains of Chynpoor in Singbhoom, and very limited in number. Tigers and leopards abound. Bears infest almost every clump of rocks throughout the plain; they are all of the long-lipped species (*Ursus labiatus*). Hyænas inhabit similar localities, but are rare. There are no *wolves*, but there appear to be two distinct species of the jackal (*C. aureas*), one of which is much larger, stouter, and ruddier than what I remember of the jackal of Bengal. The cry also is different, and is a wailing sound not much unlike, though infinitely louder, than the mewing of a cat. At all events the Koles distinguish the two animals, calling the large kind (from its cry) *Tow Koola*, and the common jackal "*Kurmcha*." The little Bengal fox or Corsac (*Cynalopex insectivorus*) is very numerous, yapping all the clear nights long, during the cold season. The Indian badger or Ratel (*Ratelus melivorus*) is found in the woods, but rarely. Porcupines (*Hystrix*) are numerous, but being nocturnal, are seldom seen. The short-tailed *marus* (*M. crassicaudata*) is met with among rocks, but is one of the rarest animals known. There are three kinds of squirrels, the common palm squirrel (*Sciurus striatus*), the great red squirrel (*Sciurus macronus*), and a large grey flying squirrel, peculiar, I believe, to the Kolehan and the Jungle Mehals. This last is exceedingly rare, as it lives on lofty trees in profound forests, and only moves forth at night. The wild dog (*Canis primævus*), *Koohia* and *Sona-kookoor* of the Oorias, and *Tannee* of the Koles, roams through the jungles in packs, occasionally visiting the flocks and herds on the plains. Their ferocity, speed, and cunning, have gained them a superstitious veneration among the Koles, and dread of their retaliating on their cattle, deters the villagers from killing them. Of these also there are said to be two kinds, a large dog, in shape and colour like a Scotch greyhound or lurcher, which hunts by sight, and a smaller, red, bushy tailed dog, which follows the other in packs of five to twenty, is less speedy and hunts by scent. The hare is larger than that of Bengal, inhabits gravelly ravines in scrub jungle,

and never takes to grass. Of monkeys there are only the two common species, the Lungoor and Mákor or Bunder (*Sara* and *Gye* of the Koles); the former live among rocks, the latter in dense thickets. Wild hogs are very numerous in some parts, but so wary as to be seldom killed. The rhinoceros is not known.

Birds of all kinds are scarce and wild, especially those fit for food, on account of the keenness with which the Koles pursue, trap, hawk, and shoot them. The double-spurred partridge is found among rocks, but is one of the most difficult birds to shoot, as it seldom takes wing, but creeps into caves and fissures. The deep moist woods afford immense varieties to the ornithologist, an enumeration of which would be useless.

Being a dry and stony country, the Kolehan is peculiarly prolific in snakes of all varieties; the covra is not so common as another species, the *Siarbinja* of the Oorias, and *Pago jarras* of the Hos (*Cophias Russelii*), which is supposed to be equally deadly, and far more vindictive; it is a subgenus of rattle-snake (without the rattle). A large and beautiful snake, coloured with black and yellow rings, the *Sakom bing* (*Pseudoboa fasciata*) is met with in ploughed fields; a long thin green whip-snake, infests the rank grass jungles at the bottoms of hills; the hartoo, a slender, agile species, coloured like a ribbon with yellow, and coppery purple, infests trees. All these are venomous. The Python or Ujgur, (*Toonil bing*) is found in every jungle; it attains to dimensions which I have heard described, but which would sound too marvellous to be recorded without better proofs. Throughout Singbhoom, Chota Nagpoor, and the surrounding countries, a belief is current of a monstrous species of snake, the "*Garra bing*," infesting rivers swollen by torrents, which destroys both men and cattle, should they venture in. I mention it, as the opinion is so general, but it is probable that the sudden and mysterious deaths which occur in these mountain torrents, are occasioned by what seamen call the "under tow" and "back water," caused by the violent passage of water over rocks and deep holes. The body of a person thus carried away is never seen again, at least in the neighbourhood, and this total disappearance naturally strengthens the idea of his having been swallowed up by some huge animal.

An entomologist would find an exhaustless field of research and discovery in the jungles of this country. The decayed saul trees are

tenanted by magnificent species of *Prionus* and *Cerambyx*; the rocks contain endless beautiful varieties of *Coleoptera*; the deep woods, every where during the rainy season brilliant with odoriferous flowers, are enlivened by *Lepidoptera* of the gaudiest colors, and numberless varieties of grotesque shapes in the *Mantides*, *Phyllia*, and *Grilli*, infest every thicket; while tribes of ants, bees, and wasps, attract attention by the beauty and ingenuity of their habitations and nests in the forests. Of the former, one of the commonest species is remarkable for traversing the jungles, and marching along the paths in procession two or three abreast, and of prodigious extent. Scorpions and centipedes are fearfully common; of the former, a species infests caves and fissures in rocks, and attains such an enormous size, that had I not heard the animal described by several people (of different classes), and had reason to be satisfied of the general truth of their assertions, I should have looked upon the whole as a chimæra. In dry, konkerous soils, the white ants are a scourge. They appear, in woods, to be a kind of vegetable scavenger, reducing to powder the logs which lie on the ground in a short space of time.

Fish are abundant in every largish stream, retiring in the dry season to the deep pools, which are left when the main channel has run dry; but the Koles, by poisoning the water, destroy inordinate quantities. The mahseer, and the little fly-taking *Cyprinus*, miscalled 'trout' in Upper India, are not found in these lower latitudes. Doubtless these running jungle streams produce many undiscovered varieties of fish, but unfortunately, to this branch of natural history I turned no attention during my stay in the country.

The climate of the Kolehan has been found to be on the whole healthy, although the station of Chyebassa, which was unfortunately selected hurriedly, and without sufficient examination and comparison with surrounding spots, is not a favourable sample, situated on a barren, gravelly plain, interspersed with brushwood, and near piles of bare rocks. The heat during the day is excessive, but the nights are invariably cool, and the air invigorating and exhilarating, in spite of the temperature, owing probably to its peculiar dryness. A mile only to the south-east, at the village of Tambore, the country rises in undulating meadows, beautiful in appearance as an English park, and infinitely cooler than Chyebassa. These advantages in forming the

cantonment were either overlooked, or thought of less note than the nearer vicinity of water, Chyebassa being on the banks of the Roro. The Hos are more free from disease than any other people, in consequence of the precautionary measures they take—their nutritive food and drink, and the open airy positions they build in. As a guard against infection or fire their villages are small and scattered, and on the first appearance of any epidemic, they leave their houses and flee into the jungles, living apart from each other. Singbhoom, on the contrary, from the obverse manners of the Oorias, is yearly scourged by cholera, fevers, and small-pox. This latter disease, propagated by the Bramin inoculators, has within the last year spread with fearful havoc into the Kolehan, and most unfortunately simultaneously with the introduction of vaccine, to which the evil has alone been attributed. The rains are not heavy in the Kolehan, but the moonsoon is accompanied by violent storms of wind from the north-west, with severe thunder and lightning, causing many fatal accidents. None of that sultry oppression incident to Bengal is felt at that time of year. The cold season is truly luxurious—"a nipping and an eager air" without fogs or mists. March, April, and May are generally the only unpleasantly hot months of the year; during this period not a drop of water falls occasionally for upwards of six weeks; the aspect of the country loses every trace of verdure, and the dried stony soil reflects with unbearable force the rays of the sun. Vegetation is vigorously restored on the commencement of the rains, and as these are not accompanied by the gloomy sky and unceasing torrents which fall in the plains of India, the landscape is pleasingly chequered by passing showers, and the tender foliage of the forests glistens alternately with golden breaks of sunshine, or mellowed shades of green. To the south and east of Singbhoom, and in the most dreary and deserted parts of the country, are remains indicative of the former presence of opulent and industrious people, but so decayed by time, and engulfed in the labyrinths of untenanted forests, as to be unmarked by any record or history, save that they must have been of prior origin to the first known Bhooians of the country. In Lalgurhpeer, the remains of a square brick fort well ditched round are still visible; it is said by the Bramins to have been the seat of a Raja of the Raj Dom tribe, who with all his people, houses, and riches, were destroyed by fire from heaven, for having slain

a cow and wrapped a Bramin in the hide, which tightening as it dried, squeezed him to death. Only one man, a *taunty*, escaped, who was warned by the bullocks he was ploughing with, of the fate which impended over the place; it is called Kesnagurh to this day. In Anlah-peer, to the far south, and on the borders of Rorwan, a few Koles of the poorest kind, have built a wretched straggling hamlet near the banks of what once was a truly magnificent tank. It is called "*Benoo Saugur*," and is said to have been built by one Raja Benoo, who fled from the place owing to the incursions of the Mahrattas. This was probably during the days of the celebrated "*Morari Rao*," for judging by the trees which now luxuriate amidst the buildings, the place must have been deserted and in ruins full 200 years ago. The tank which I paced, as well as the jungle allowed me, is about 600 yards square. On the east bank are the remains of a handsome stone ghaut; the west side may be similar, but was inaccessible, by reason of thickets; on the summit of the ample bund surrounding the water, lie stones richly carved; it is probable they once constituted small temples ranged around. In the centre of the tank is an island, crowned by a temple, now almost a shapeless mass. On the south-east corner of the tank are the debris of a gurhee or small fort, which appears to have been a parallelogram of about 300 by 150 yards, enclosed by a massy wall, with towers at the corners. In the centre are two sunken platforms, with stone steps descending into them, in which lie idols in all stages of decay; some of these were buried many feet under a loose reddish soil, having the appearance of decayed bark. Among several Gunnèshes, Parbuttees, Mahadeos, and other gods of modern Hindoo mythology, were others which my informants, the Mohurbunj Raja's Mookhtar, the Burkoonwr of Rorwan, and several of their Bramin attendants, could give me no history of. Three of the best preserved of these I took away with the help of some Nagpoor Dhangars, not one of the people of the country daring to touch them. About 300 yards to the south of the gurhee is another mound or hillock of broken bricks, which I was told was the "*Kutcherry*" of the Raja. To the west of this, and all along the bank of the Tâlab, the plain now covered with jungle grass, and here and there cultivated with *gora dhan* by the Koles, is scattered with bricks, showing that a substantial town or bazar must have existed here.

Still further southward, about eight miles, and two miles beyond Rorwan, these remains occur in greater number, and better preservation, and the road leading to them is replete with debris of the most melancholy and dreary nature, rank grass waving over tanks, some of great magnitude, which lie on every side. Thickets and briars matting over richly carved ghauts and temples; old avenues and plantations whose symmetry can now scarcely be detected amidst overwhelming jungle, offer a vivid picture of what these deserted tracts once were; and the mind instinctively pictures to itself a once opulent and prosperous people, whose forgotten dust rests perhaps within the funereal shades of these ancient forests, as their fates and fortunes, alike unknown, lie buried in the elapsed vastness of time!

The temples at Kiching are still resorted to by pilgrims from the south, and kept in tolerable repair. There are two of them, but only one made use of in offering sacrifices, &c; it is in an unfinished state, the materials for the dome lying on the ground round about, as if they had been hastily abandoned. A narrow path winds up to the temple now in use, through dense thickets and forest trees, among which lie, thickly scattered, portions of elaborate sculpture, idols, and alto-relievo figures of men in armour on horseback, nauchnees, jugglers, servants, &c. &c. These two temples are part of a circle of sixty similar ones (according to the Déoree, or high priest of the place) which with sixty corresponding tanks are placed two miles apart, in a circle of forty miles in diameter. Of these, the temples at Kiching and some others at Odeypoor, on the banks of the Byturnee, are alone visited. A superstitious dread deters access to the others, and in truth they are buried in such awful wilds, as naturally to excite the fears of such a credulous race. The tank at Kiching lies to the north of the temple, and appeared to be about 300 yards long, and sixty or seventy in breadth; it is said to be of masonry, but I did not examine it.

In the vast saul forest which spreads over the boundary of the Kolehan and Baumunghattee, and about twelve miles from the nearest village, are two extraordinary pools of water, evidently artificial, called the "*Soormee* and *Doormee*." The former is about 300, the latter 200 yards long, dug in a perfectly straight line, and separated by a bund or causeway, so that they appear to have

formed a long water chaussee, or avenue, leading to the Kurkye river, which is not above half a mile off. No traces of paths or buildings or artificially planted trees were here discernible. Absurd stories are told of the fatal effects of the water on man and beast, by the Bhoomijes, who are the exorcisers of unclean spirits in the jungles, and the spot is carefully avoided by the superstitious Koles. I visited the "*Soormee Doormee*" while laying down the boundary in 1838-1839; we had great difficulty in forcing our way through the dense jungle, not the trace of a path existing, and I verily believe we were the first party, for many generations, who had intruded on this abode of utter silence and seclusion. There were fine fish swimming in the water, and the traces of deer in numbers round the bank, as they come nightly to drink there. It was with difficulty however I could prevail on a few to follow my example in taking a draught from the pool.

In none of these places could I perceive inscriptions of any kind, and I cannot here avoid expressing a regret, that my ignorance of Indian antiquities prevented my throwing any light on the history of these truly interesting, relics;—Interesting, as being situated in such unknown wilds, as indices of the entire revolution that has taken place in the political history of the country, and as proofs of these untrodden jungles having once been the seat of opulence, industry, and power, so utterly decayed, so long departed, as not to have left a record behind.

(To be continued.)

NOTE.—Although it is very improbable that any of our readers should be enabled to visit the Hodésun, with sufficient time at their disposal to examine closely, and carefully, the ruins at Kiching, and Lalgurhpeer, I cannot help requesting particular attention to Lieut. Tickell's notice of these interesting remains, with a view to our procuring at some future time a more detailed account of them. The best thanks of all interested in the study of Indian History, are due to the author of the excellent paper now under publication, for his having (I believe I am right in saying) discovered in the wilds of the trackless forests of Chootia Nagpore, these singular traces of a people, and a power, whose name lives hardly preserved by even local tradition. His ample, and able statistical account of Hodésun is of real utility, and we must acknowledge that he has done well in foregoing a possibly fruitless search for antiquarian remains, which would necessarily have diverted his attention from more

important objects. As these however have been fully accomplished in the paper before us, I trust that, should opportunity offer, search may be made in the vicinity of these deserted cities for any traces which may enable us to arrive at conclusions regarding their history. A paper which I hope soon to publish (Journal of an expedition to the Naga Hills, by Lieut. Grange) will prove the value of similar research in a historical point of view, by the result of that officer's observations on Dhemapoor Nuggur, now like Lalgurhpeer a mass of ruins in a wild forest, but formerly the residence of the Cacharce Rajas. H

Sketch of the Physical Geography of Seistan, by Captain EDWARD CONOLLY, 6th Cavalry.

The southern limit of the lower ranges of that portion of the great Caucasian chain of mountains which lies between the 62nd and 65th meridians of east longitude, is well defined by the lower, or Dilaram road from Girishke to Furrah. From this line a vast desolate tract

Position. extends, part of that great desert, named rather loosely by Malcolm, the Salt Desert. Sloping gradually to the south-west, it descends, like the plains of Tartary, in steppes, till its progress is arrested, on the south, by a high sandy desert, and on the west by a broad and lofty chain of hills (1) which stretches in a south-west direction from probably near Ghorian to the Surhud, and thus perhaps connects the Parapomisan mountains with the Southern Kohistan. The south-west corner of this thus interrupted plain, the last and lowest steppes, are Seistan (2).

The country so named, of which the length may in round numbers be estimated at 100 miles, and the breadth at 60, is entirely composed of flats, with the exception of one hill, (3) (the Nature of the country. Koh-i-Zor) and in its whole extent, not a stone is to

1. This range is known by different names; in the latitude of Killah Rah, it is called, from a celebrated hill, Atishana near Bundau, Koh-i-Bundau—and opposite Zirreh Koh-i-Pulung,—the hill of leopards.

2. That is modern Seistan. In ancient times, the country known by this name was only bounded on the north by Ghare and Zemindawer, in the latter of which a learned orientalist has recognized Zabul. As the present sketch is intended solely to explain the map, and the ancient history and geography of Seistan and the countries around it will form the subject of a separate memoir, no allusion to the latter will be found here.

3. In the Univ. Gazetteer, 1837, you read, "The country is generally mountainous"? There is a small hill called Kohga, on the north-west of the Hamoon, which is sometimes surrounded by the water of the lake; at present it belongs to the chief of Laush.

be met with, except a few rounded pebbles in the beds of rivers. The soil is either the light and soluble earth of the desert, or the still lighter alluvial deposit, and there is hardly one tree, and not one of any size, in the whole country. From the north and north-east, it receives the waters of numerous rivers, which partaking of the nature of mountain torrents, at one time of the year rush down with great violence, almost black with mud, and at others are either quite dry, or flow in a clear, languid and shallow stream.

It requires but little knowledge of Physical Geography, to judge of the effect of a large body of water discharged in this manner, with varying velocity, into a basin, incapable, from its nature, of offering the slightest resistance to its progress. The water hurries away to the lowest spots, and there, when its turbulence has subsided, drops its loads of earth, till in process of time these low spots have become elevated, and the water is driven to some other place. It necessarily results, that the level of the country must constantly be altering, and that as the whole bed of the lake is thus gradually filling up, the waters spread themselves over a large surface every year. This extension is much assisted by the deposits which take place in the beds of the rivers at their mouths, which deposits are of course ever on the increase as the current becomes less rapid, when layer after layer of settling earth diminishes the slope. In consequence of this filling up of their beds, nearly all these rivers overflow their banks on entering Seistan.

Of the correctness of these views, the whole country exhibits many proofs, even to the passing traveller; and a scientific resident might probably be able to develop much of the interesting history of the progressive changes. For a long period of years, however, Seistan would seem to have presented much the same general appearance as is attempted to be delineated in the annexed sketch.

The violent action of the swollen streams was in a great measure moderated by large bodies of water being drawn off in canals, which were conducted, in some places, as far as forty miles, through dry and sandy tracts. Massive embankments had been also constructed by rich and enlightened governments, which prevented the water from flowing without controul, and confined it within certain bounds for the purposes of cultivation.

It is only of late years that a very remarkable change has taken place in the aspect of the country, to explain which it will be necessary to say a few words on the geography of its lakes and rivers, at the period represented in the sketch, when Captain Christie visited Seistan.

The lake, which stretched in a direction parallel to the Bundau hills, was about seventy miles long, and had an average breadth of eighteen miles. Its principal feeder, the Helmund, is not inaccurately laid down in our maps, with the exception, that the Khash-rood is not one of its tributaries, and that the Arghandab enters it just below, and not above, Killah Beest. This river, in the dry season, is never without a plentiful supply of water; during the swell, it comes down with astonishing rapidity, equal in size to the Jumna. As soon as it has left the hills, its bed is generally four or five miles in breadth, the water more easily penetrating the readily yielding sides than the bottom, converted into a sort of pavement by the stones rolled down from the mountains. The stream has not however of late years occupied the whole breadth, though in former times, before it had cut itself so deep a bed, it would appear to have done so near Girishke; for example, there are ruins at opposite sides of the river of forts known to have been contemporaneous, and under which the water must have flowed (for they are built in a semicircle, without a wall on the river face) though there is a space of four miles between them.

The stream now hugs its left bank, above which rises in vast mounds the sandy desert. The ancient right bank is well marked by the high cliffs of the plain before mentioned, which are every where hollowed and indurated by the action of water. The rich space between this bank and the modern channel, of which the average breadth is rather more than two miles, is the country of Gurmsehl.

The Helmund receives the waters of one or two small streams from the desert on the west, which will be mentioned in the description of that tract.

The three rivers next to be described, have experienced little change since 1810. The first, the Furrah-rood, passes a little to the north of the fort of Furrah, and runs close under Laush, about twenty miles south of which it enters the Seistan lake. I am not aware of this river receiving any tributaries in the lower part of its course. (4) The Furrah-rood is nearly dry for the greater part of the year, water is however confined in many places by bunds or natural hollows, and is always to be found by digging a few feet into its bed, which is the case with the Helmund, and most of the rivers of eastern Asia. (5) During the spring it is a broad and rapid river, but not half the size of the Helmund.

4. The Gizea found in Arrowsmith's Map of Central Asia, 1834, must be either erroneously laid down, or is some insignificant stream.

5. Baber remarks this in his memoirs.

About twelve miles west of the mouth of the Furrah-rood, a river discharges itself into the same lake, which though equal in size to the last named, has nearly escaped the observation of geographers (6): this is the Adrascund, which crosses the high road, some fifty miles south of Herat, near a place where it is joined by the Rod-i-Gez, celebrated for the sweetness of its waters. After flowing east by south, through the plain of Subzawar, it sweeps round to the west, runs down a narrow valley called Jaya, and passes a little to the south of the valley of Pomegranates, (7) where Capt. Christie crossed without recognizing it. Of the course of the stream for a short distance after this, I am doubtful, but its further progress to the west must be soon arrested by the inclination of the ground from the western range of hills before mentioned. Entering the tract, from its extreme barrenness called the Waste of Despair, (Tug-i-Noomed) (8) its name, which since leaving Subzawar has been changed to Jaya, is again altered to that of the fallen angel Haroot. It then flows a little to the west of Killah Rah, the northern part of which it waters, and with a nearly southerly course empties itself into the lake of Seistan. A few miles above its mouth, the Herat receives a small salt river, the Khash Koduk, which has water only in the spring, when it drains the marsh of Furrah.

During the wet season, a mountain torrent, rather than a river, flows S. E. into the lake from Bundau, by the name of which place it is known. The Bundau has a course of less than 50 miles, and only deserves notice as being, as far as our knowledge extends, the solitary stream which enters Seistan from the west.

The Khash-rood has for so long a period occupied an erroneous position on our maps, that its real course deserves particular attention. After crossing the Herat road, it travels south-west to Seistan, but in 1810 it did not enter the lake; its waters just below Chukhnasoor, having spread themselves out over a low tract called from a species of marshy grass (aishk) which abounds there, Aishkineik. That the Khash-rood has been stated to empty itself into the Helmund at Kona, sheea, may perhaps be accounted for, by supposing some confusion between the name of that post and of Chukhnasoor, of which the more correct appellation is said to be Khanehsoor, or the house of marriage, it being there, according to tradition, that Giu married a daughter of Roostum.

6. Gerard first traced its course from the Herat-rood to Anardureh.

7. Anardureh.

8. I do not exactly understand the limits of the plain known by this name. North of it is a great salt tract, the Nimuksar.

The Khash is a much smaller river than the Furrah; a large proportion of its waters are drained off for cultivation, and during the greater part of the year its channel, which is never of any great width, only contains waters where it has been banked in, or in a few deep pools. On its banks and in Scistan, the Khash is always called the Khoosh, and in some geographical works is written Khooshk, or the dry river. The Aishkineik was a marsh during the swell, and dry in summer.

The Ibrahim Jooi is made in our maps to fall into the Khash, but in reality a little below Bukheva, it spreads itself out and forms a marsh also called Aishkincik, which is, however, usually dry, there being little water lower than the Ismail Khan. I know of no stream flowing into the Khash from the west, except a small river which commences, I was told, somewhere below Bukheva; from the east it receives the Rod-i-Regghi, the direction of which will be seen in the map; but of the early part of its course I am doubtful.

To the west of the Khash three smaller streams flow into Seistan from the north-east; the Rod-i-Khar, the Chabulk, and the Koospas. The first and least, at the period of which we are speaking, discharged itself into the Aishkineik above Chukhnasoor.

Of the other two, the Chabulk rises in a spring called Chusmeh Meshak, about six miles south-east of Toojk, below Furrah; the second at Siah-ab, a hill between Koormalik and Bukheva, celebrated as the spot where the Vuzcer Shah Wulee was put to death. These two rivers formerly debouched in a lake some miles east of the principal one, and known by the name of Duk-i-Teer, a promontory on its eastern bank, famous in the fabulous history of Seistan, as the place from whence Roostum procured the arrow with which he killed Isfundear.

Of the extent of this lake I have no very precise information. On the north it reached to within eight miles of Jowaine; it was probably connected with the Aishkineik on its south, and when swelled by extraordinary floods, may have even been united with the lake of Koh-i-Khwajeh, as a high bank prevents its extension to the eastward.

It also received some of the waters of the Helmund by branches striking off north and east from that river, after it had passed Rodbar. Of these the principal, which left the parent stream near Deh-i-Nusser Khan, was called the river of Ilumdar, and another of smaller size, but since become remarkable, went off from Khwajeh Ahmed.

Such was Seistan for a long time. The Helmund glided along each succeeding year in nearly the same channel it had occupied the year before, and the inhabitants on its banks were too ignorant to remark or to care to counteract the consequences they could have hardly failed to fore-

see, of the change which was gradually preparing by the annual deposition of alluvial matter. The great embankments, whose ruins still record the names and wisdom of kings of yore had been neglected or destroyed, and the canals which enriched more than one desert district, were dry, and the fields they had watered a waste. Zirreh, so celebrated in history, which defied the arms of Chengiz and Timour, did not boast one inhabitant. Of Tragu, Killah Put, and Pshaweroon, and of other great cities, through the ruins of which the traveller wanders for days, all that remained were the walls and the name.

About nine years ago an unusually large inundation changed the whole face of the country. The main stream of the Helmund deserted its old bed, and cutting for itself a wide channel out of that of the small branch which went off from Khwajeh Ahmed, carried the greater part of its waters to the Duk-i-Teer. This lake was insufficient to contain so large an accession to its mass; the superfluous waters forced themselves a passage through a narrow and low neck of land to the westward, and discharged in this manner into the old lake, thus connected, and made the two one.

The inhabitants of Seistan were at length roused from their indifference by a disaster which threatened their very existence, as it deprived them of the means of irrigating their fields. United by the common danger, a large body of men of the different tribes assembled together, and in the course of the ensuing summer raised an immense mound across the river, near the place where the waters had diverged; but through their ignorance of physics, their labour was thrown away. The next flood turned the embankment, and the river, as in the preceding year, passed away from Seistan. Since that time the Seistanis despairing of success, have made no further effort to reclaim their river. The greater part of the water of the Helmund is discharged into the Duk-i-Teer by several mouths, and the now scanty stream of the old bed, confined by numerous bunds, hardly suffices to water the lands it formerly overflowed, and is a never ending source of contention, between the various tribes which inhabit its banks.

Geographers have been at a loss to account for the many different names which have been given to the lake of Seistan. The solution of the puzzle is very simple.

Name of the lake of Seistan.

The Persian word Hamoon *حامون* signifies a plain level ground. (9) The Seistanis apply the term to any expanse of water.

9. It is frequently found in this sense in Persian authors, as in the Bostan :—

Ze deria amá bur amud Ruse,

Sufur Kurdáh deria wo Hamoon buse.

I know of no instance of any author having used the term to express an expanse of water. The similar sounding name of the Oxus, Amoo, is probably descriptive of its periodical swell.

During the swell, as before observed, the Helmund overflows its banks, and water is sometimes carried into low spots, from which some ridge intercepts its retreat, when the river again retires to its bed. In this manner numerous small lakes were formed, and each of them was called a Hamoon, and was distinguished by its particular appellative. The united waters are styled the Hamoon without any distinctive adjective. The old lake also was in former times known as the Hamoon, though sometimes, as now specified by the name of the celebrated hill in the midst of it, the Koh-i-Zor, or Roostum, or as it is more generally called from a modern saint, Koh-i-Khwajeh.

The Hamoon of Zirreh was some miles to the south the Hamoon of Koh-i-Khwajeh, and was perhaps formed in the manner above described, from the overflow of that lake; though it is not improbable that a natural or artificial branch of the Helmund went direct to Zirreh. This Hamoon will be mentioned in the sequel. The lake of Zirreh, and many smaller ones, some of which are marked on the map, are either dry, or are drying up in consequence of the diversion of the Helmund. On the site of one, Boorj, one of the four capitals of Seistan has been built, and the place of water is supplied by corn-fields.

I cannot learn that the principal Hamoon, or any of the smaller ones were ever styled in Seistan, Loukh; I suppose therefore, that title to be a Persian or Afghan fabrication, or it may have obtained currency through some misconception of the meaning of the person who originally employed it to designate the lake, to many parts of which the name would be sufficiently appropriate, "Loukh" in Persian and Pushtoo signifying "rushes;" but this word is not known in Seistan, where a rush is invariably called "Toot."

The most fitting appellation of the Hamoon is the classical one of Aria Palus, for it is in reality almost every where a mere marsh. It has rarely a depth of more than from three to four feet, and is almost entirely covered with reeds or rushes. There is however a considerable difference in the appearance of the old and new lake, particularly in the dry season.

Of the Duk-i-Teer, I have only seen the south part; there it is a large sheet of water, thickly studded with reed-topped islands, its depth averaging about four feet, and having a very muddy bottom. The reeds are tall and close together, but you can walk through them without difficulty. To the north there is probably less water, and the reeds are not in patches, but cover the whole surface. In the old Hamoon, on the contrary, the reeds are in most places stiff and thick with age, and stand so close together in clumps, their roots being united by little hillocks of encrusted earth, that quadrupeds even are unable to force their way through them.

This is particularly the case round the hill of Roostum, the only mode of reaching which in the summer is by a ditch two or three feet wide, and having an average depth of three feet of water, very salt, rank with putrifying matter, and nearly as black as ink. Men, horses, and cows wade through the slime, people of the better classes are conveyed to and fro in a species of canoe called Tootee, and peculiar, I believe, to Seistan. Four or five bundles of reeds are fastened together by rushes, or by the flexible tops of reeds, the cut edges forming a square stem, the upper ends being tied in a point for a prov. The passenger seats himself in the middle, one man pushes from behind, and another pulls at the front. During the wet season the tootees are made of larger size, so as to admit of as many as four men sitting in them, and are propelled by paddles and long poles, but they are rarely taken into the deeper water, where the waves would wet and sink them. These boats last only for a few days, for the wet reeds soon become rotten and heavy; they are made and navigated by a particular class of men called Syads, a word which expresses their profession of fowlers. The ditch road I have mentioned has to be renewed every year when the waters have subsided.

The old Hamoon can be seen to the greatest advantage from the tops of the hill of Roostum, from which elevated position the eye travels uninterrupted over a plain bounded only by the horizon, except on the west, where, at fifty miles distance, rises the chain of the Bundau hills.

It was in September that I took my station on this hill; immediately beneath me lay a yellow plain, as level as a calm sea, formed by the tops of reeds, and extending north and south long beyond the reach of vision. On the east it was bounded by a strip of paler yellow, marking the borders of the lake, where the less thickly growing reeds are annually burnt down, and a few poor Kheils clear away the ground for the cultivation of water-melons. Beyond again, in this direction, appeared the dark green of the tamarisks, whole forests (11) of which fringe the lake. Here and there as we looked around on every side, were seen patches of blue water, and on the west a large clear lake stretched away till out of sight. All seemed waste, but the towers of Chuling and Sekoha showed like white specks in the distance; and winding and shining through the tamarisks, you might trace the course of several streams, which once formed the delta of the Helmund, and in which water is still retained at intervals for the purposes of agri-

11 Lest I be accused of a contradiction, as it has been said that there are no trees in Seistan, I may mention, that the tamarisks rarely, if ever, attain any great size in that country.

culture. The water of the Hamoon is salt (12), but not at all places equally so, the intensity varying according to the depth, nature of the soil on which it rests, and the proximity to the mouths of the rivers. The Seistanis boast that the water of their country is the best in the world, that it gives an appetite, and promotes digestion; even when most distasteful, it is said not to be injurious, and the garrison of Koh-i-Khwajeh drank no other than that of the ditch path, described above, which is so brackish that none of our horses after a fatiguing march in the sun could be induced to drink it.

It has been stated that the Hamoon is every year spreading over a large superficies, which requires explanation, since it seems at variance with the received theory of the other inland lakes, the Caspian, Aral, &c. all of which are said to cover a less space now, than they did in former times. With only a general knowledge of the geography of those seas, it is dangerous to hazard a conjecture regarding them, but it seems by no means improbable that much of the land which is represented as shewing traces of having once formed part of the lakes in question, was covered with water before those lakes had occupied their present beds, proving therefore no more than that the water has changed its position, not that it is less in extent. The Caspian on the north, where traces of inundation on lands now dry are the most remarkable, is shallow, marshy, and covered with reeds, as if the water was gradually deserting it. It must however be borne in mind, that as the lake spreads, it offers a large surface to the action of evaporation, and that in proportion to the apparent increase, there is a real diminution in bulk.

The evaporation in Seistan must be very great. The heat in summer is said to be more oppressive than that of Candahar, and for half the year, a strong steady wind blows from the snowy mountains above Herat, to compensate the exhaustion of air in the burning desert to the south. This wind, which is called the "Bād i sud o bist roz," "a wind of 120 days," is confined to a breadth of about 80 miles, being bounded on the west by the Bundau hills, and extending no further east, it is said, than Khash.

I should have desired here to give some account of the natural history of Seistan, but of the study itself I am nearly ignorant; the field is, I suspect, a barren one, and the season at which I visited the country was

12 Nothing but common salt is found in Seistan itself. The plain of Furrah is a saltpetre marsh. Salt is found in patches in various parts of the desert, that of Peer i Rizre in the Gurmsehl is celebrated for its whiteness.

unfavourable to the prosecution of it. A description of the Hamoon however would be incomplete, without some notice of the more common animals to which the lake gives birth or affords nourishment.

The marshy and reedy parts of the lake shelter innumerable wild hogs.

Natural History. In a small history of Seistan written by a native, it

is stated, that when a man cultivates a piece of ground, he calculates on losing half the produce by their ravages. The villagers,

Wild Hogs. as may be supposed, spare no means to destroy these destructors; they lay snares for them, shoot them, and

hunt them down with dogs. The dogs are large, strong, bold animals, resembling the Bhil dogs of India, and are regularly trained to hunt. Accompanied by a dozen or more of these you sally out, and as soon as you approach the reedy grounds which the hogs frequent, you perceive on all sides the earth ploughed up with their tusks. The Seistanis, who are eager sportsmen, strip, and wade nearly naked through the mud. Soon a bark is heard, the note is immediately taken up, and all the dogs join in the cry like a pack of English hounds. After a due quantity of holloing and splashing the game is brought down, or if of large size, is held at bay till the huntsmen come up and despatch it with their matchlocks. The Seistanis though Sheeahs, and like all Sheeahs full of prejudices, do not object to handle the hog: the nearest huntsman cuts up the carcase and gives slices of it to the dogs, and the rest is brought home as food for them.

When the waters are rising in the spring, herds of thirty or forty are to be seen swimming one behind the other from island to island. Large numbers are thus sometimes collected into a small spot, and the hunting then becomes most dangerous; hardly a year passes without lives being lost in the sport.

The hogs are however a trifling nuisance compared with the hosts of

insects bred in the stagnant waters. The mosquitoes

Insects. are so troublesome, that in the spring, the poorest

villager is obliged to make a small room of a coarse open cloth called "kirbas," into which he retires with his family as soon as the sun sets. "Clap your hands together," said a man whom I asked to give me some idea of their number, for when we passed through Seistan there were none, "and the palms will be covered with blood." Fleas are said to be no less numerous, and from them there is no escape; but the worst plague of all are the flies. I had been sometime in Seistan before I understood why the inhabitants complained so much of these insects; a few would now and then settle on the inside of our horses thighs, (every other part of the body being always protected by cloth) and where they bite a small stain of blood is

left, so that the animal was marked as if leeches had been applied to it; but this was all, and though every one said, "You have not seen the flies, a cold night killed them just before you arrived, &c.," I began to suspect that the reports I had heard on the subject were fabrications, or at least exaggerations. I was mistaken: it was our last march in Seistan; we were approaching Chukhnasoor, and our road lay over some soil which the water of the lake had lately left, and which was hard, dry, and broken into innumerable small cracks: from these cracks such swarms of flies issued, that I can only give an idea of their numbers, by comparing them, to bees near a hive which has just been disturbed. They buzzed round our faces, and bit us in every less protected part, as the ankle above the shoe, the neck, &c. When we reached our halting ground, Peer i Risri, on the bank of the river Khash, their numbers were incredible; the horses were nearly maddened, and the servants declared they would all be killed. We lighted fires on the windward side of every horse, smothering the flame to make the smoke rise: this was not sufficient; we could not drive away the flies from our own persons, and the heat was too great to allow of our covering our faces with a cloth. On the opposite bank was a thick jungle of dry reed, we set fire to it, and huge volumes of smoke driving over us, we escaped our tormentors at the expense of sore eyes, and being blackened with ashes. During the night, afraid to face another day here, we hurried away to Ruddeh, glad to be quit of the flies and Seistan.

The Seistan fly resembles the common fly, but is twice as large. In the spring it is of a pale brown with dark spots; as the year closes the colour turns black, and soon after the insect dies. The bite is painful, but less so than the sting of a wasp, and the pain is only momentary.

To the annoying attacks of the flies, is generally attributed the remarkable mortality which prevails among horses in
Horses. Seistan, and it is not improbable that the irritation produced by their bites may have considerable effect in promoting the evil. There is hardly a horse in the country. Of more than 5,000 brought by Kamran in his expedition, about four years ago, not one is said to have been alive six months after the return of the army to Herat. This is of course a gross exaggeration, but there is no doubt that the loss was immense. The few horses which the Seistan chiefs keep for state, are tended with the greatest care in dark stables, from which they never issue, unless on some important occasion, except during the winter. When brought out their whole bodies are covered with cloth, particular care being taken to protect the belly, for a bite in that part is considered fatal; they are never galloped, for it is believed that if a horse sweats, he is sure to die. I bought a horse from a Belooch chief, which Rhohundil Khan of Candahar

had sent down as a present four years before. The beast had never been mounted, had hardly left the stable, and the owner was glad to accept any trifle for it to escape the expence of its keep.

The symptoms of the fatal disease, which is called "Soorkh surgeon," or red dung, are as nearly as I could collect from inquiries among the natives, and my own observation, as follows. First, the hind legs swell. The Seistanis then say "Bad gerift," "the wind has seized him," an expression applied commonly to a rheumatic complaint. One of my riding horses refused its food; we were standing by inquiring the cause, when a man who was looking on, came up, opened the mouth of the animal, and exclaimed, "Your horse will die—he has got white gums:" this is the second symptom. The dung now turns of a vermillion colour, the skin is frequently covered with pimples, the urine is bloody, and at last a paralysis seizes on all the limbs, and soon after death ensues. The eye during the progress of the disease is of a pale yellow colour, only a few specks of white remaining, and it is said that the "tail dries up," so that you can pull out the hairs by hands full. The disease in some cases I witnessed, killed in three days; but horses passing through Seistan generally live for a few months, dying however in certainly two cases out of five, within the year. The Seistanis having found all their remedies fail, now generally abandon a horse to its fate as soon as it is taken ill. Bleeding, the most obvious treatment, is, I was assured, useless, and the only mode of cure recommended to me, (warm goat's blood) is evidently absurd. This epidemic is confined to Seistan; it is not known at Jowaine, or Neh, or even Kuddeh. The Seistanis pretend that it has only appeared in their country of late years, but the ancient Zarangeans, and the armies which fought against Timoor, were foot soldiers, which argues the contrary.

The climate is unfavourable, but in a less degree, to camels. Both these animals and sheep die in great numbers from eating the leaves of a plant called Trootk. Not more than 3 or 4000 camels could be procured in Seistan; when required, they are brought from Gurmsehl, or the sandy desert to the S.E. Sheep feed generally on a small creeping plant called Boonoo, which abounds in the salt grounds, and which tastes like salt itself. Boonoo is sometimes used for horses' food, but it is first washed, by which process it loses much of its bitterness. There are many varieties of grasses all over the country, but several of them were said to have noxious qualities. (13) The only domestic animal which thrives well except

*13. I collected specimens of them which are not at present available for verification. The most common is called Kirta, when we passed through Furrah, that whole plain was covered with it, and resembled a rich English meadow, sheep and cows thrive on Kirta, but it acts on horses as an aperient.

the mule and ass,---the latter of which is very common and useful, is the cow, which is much valued in the neighbouring countries. People
 Cows. send their cows from a distance to pasture on the reeds of the Hamoon, which soon bring them into condition, but a cow thus fattened, though looking sleek and plump, does not yield the same quantity of milk as the Candahar cow, which revels on artificial grasses; for the first, six seers of milk is considered a fair supply; at Candahar twelve seers are commonly drawn. The Seistan cows are exported, three or four hundred every year, to Candahar, Persia, &c. I heard a well attested story of one which had returned by itself from Teheran.

Cows are put to a singular use in this country (14); they are taught to hunt. In the spring, when the lake is covered with water-birds, the cow quietly crops the reeds, and the birds used
 Stalking. to its presence, do not rise at its approach. Behind it skulks the huntsman, his matchlock resting on its back. The cow moves along very quietly, first lifting one leg and then after a pause another, every now and then stopping and feeding, till it comes to within a few feet of a dense mass of fowls. The hunter then fires, picks up his prey, and continues his sport as before.

Many cows are said to die from a disease called "Murk," (a corruption perhaps of "Murg," death) when you are told, a maggot is always found in the liver.

The water-birds of Seistan I did not see, but I could well credit the reports of their extraordinary numbers by the appearance of many parts of the grounds which had been lately deserted by water; in some places

Birds. the marks of feet were so numerous as to remind us of an etching. Geese, ducks, and teal, are tamed. A very fine species of tame duck is brought from Buncpore, and is commonly offered as a present in Seistan.

A famous shot, a cousin of the principal chief in Seistan, Mahomed Reza Khan, wrote out for me a long list of all the birds with which he was acquainted, with remarks on their habits, &c. but his notes are more amusing than instructive. (15)

There are probably few fish in the lakes, or rather few varieties of fish.

Fish In all the rivers we crossed from Girishke to Herat, though we frequently threw in poison, and caught fish in hundreds, we only found two species, a carp and a silureus. The Heri-rood has

14. The same custom is known in Afghanistan; see Elphinstone.

15. Thus he speaks of the Kohtan, or pelican, the water-carrier of the birds, which fills its bag with water, and flies far away into the thirsty desert, where the little birds exchange the food which they have collected, for a drink of his water. Or of the "Furdeh hegirum," or "I'll catch him to-morrow," a kind of bastard hawk. Every morning it resolves to go a hunting, but scarcely has it made two circles in the air, when a piece of cow-dung attracts its eye, "Well never mind," it exclaims, settling down on the cow-dung, "I'll catch to-morrow."

also the dace, and in the Hamoon there is a small fish much esteemed, called Aujuk ; it was not in season, and I did not see one.

The more common wild animals are wolves (which will attack cows and even men) jackalls, hyænas, foxes, porcupines, hedge-hogs, the kangaroo-rat, otters, &c.

The skins of the last are exported to Bokhara, and sell even in Seistan for three or four rupees. The leopard, or as a native described it to me, "the tiger's younger brother," is found in the western hills, to which it gives a name.

Wild asses and deer abound in the desert which lies between the Helmund and the Bundau hills. This tract differs much from the sandy desert south of the river. Little sand is found on it, except in strips of no great width. For the most part it consists of a hard, compact, light-coloured clay,

Deer. over which a few shrubs, tamarisks, and grasses are thinly scattered, but sometimes it is perfectly destitute of vegetation for miles. Large spaces are found covered over with rolled stones, nor could we in every case assign a plausible explanation of their presence. The few isolated hills are marked on the map.

Water is procured by digging wells in the beds of one or two small rivulets, such as the Murja and Tagrish, which are dry except after a fall of rain, and a tract runs through the desert, called Shund, where water can always be found within a few feet of the surface. Formerly brick wells were to be met with at every 10 or 12 miles on the caravan routes, but they are now almost all of them purposely destroyed by the Afghans, that the plundering Belooches may be prevented by want of halting places from invading them. From the scarcity of water in the interior, it is almost destitute of animal life ; the deer are found near the rivers, but chiefly, and in immense herds, at a distance of generally 7 or 8 miles from the Helmund, where they are almost intermixed with large flocks of sheep, which are sent there from the banks of the river to fatten on a grass called Muj. The mode of catching the deer is curious. The canals for irrigation are always cut as closely as possible to the cliffs of the desert, a narrow space only being left for a high road. The traveller in the Gurmsehl will remark the outer or desert edge of the canals lined for miles with a slight railing of threads raised on small pieces of stick ; at every one or two hundred yards a gap is left. Here in a pit dug for the purpose on the inner side of the canal, sits crouching the hunter, the muzzle of his matchlock, which rests on the edge of the pit, being concealed by a parapet of small stones.

In the twilight, either morning or evening, the deer steal from the dry desert to slake their thirst in the canal, sometimes singly, sometimes in

herds, one walking quietly behind the other. A troop is seen approaching; on reaching the edge of the water the white line is perceived, and the leader afraid to cross it, turns, and followed by the rest walks trembling along side of it till the spot is reached where the hunter lies concealed. This is an anxious moment; the deer pauses as if to consult with his brethren. Frequently the marksman in his eagerness moves, a stone falls down from the parapet, and the startled herd scamper off to the desert again; but they must soon return. As the poor animal which has been once scared returns half dead with fear and thirst to the dangerous spot, you can hear its heart beating. Slowly, and step by step, frequently stopping and looking round, it at length has neared the water: it stoops to drink: the muzzle of the gun is within a few inches of its head: before one sip has been taken, a bullet has pierced its brain.

Wild asses are not common in that part of the desert I traversed; they are said to be found in great numbers, in herds of two or three hundred, on the plains west of Seistan.

The soil of Seistan is celebrated for its richness, and many incredible stories were told me of its productiveness. From this fertility it might be supposed that Seistan was a garden,—it is a desert rather. With the exception of wheat, cotton (the plant of which is not half the height of the Indian one, but which bears a large pod) and in some places rice, and a little ill flavoured tobacco, and a few of the coarser grains, bajra, &c. almost the only plants found there are grasses and water-melons. The latter are singularly fine and large, and of several kinds; there are no artificial grasses, no vegetables, nor flowers. The largest tree is a sickly pomegranate. If a Seistani is asked “why don’t you make gardens?” he will answer, “We don’t know how.” Were the people less ignorant and lazy, their country would produce every plant which grows in Candahar or Persia, besides probably sugar-cane, and many of the productions of Hindoostan; there is no reason why trees should not flourish here. The Gurmsehl was equally destitute of them a few years ago, but some 1200 young mulberry trees were imported there by a chief, and the country is now well stocked with them.

The climate of Seistan is decidedly unfavourable to human life, and the small proportion of old men struck us forcibly. Fever and
 Climate. ague is the prevailing disease, as might be expected from the immense quantity of stagnant water, to which is superadded the bad effects of hot days and generally cold nights. From the constant high wind and the dust it raises, mixed with particles of salt, or from general ill health, consequent on malaria, one man in five throughout the country has diseased eyes. Nature indeed, as respects comfort, has little favoured

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५ अक्षरधामकेलिसदृशवृष्टुकककलिलामध्यामालयान्ध
गामावेरुमयकलिलकुहिकनदःसिद्धर्तबालिमादाः।

Comparative Alphabet

अ आ इ ई उ ऊ ए ऐ ओ औ : क ख ग घ ङ
 ञ ट ठ ड ढ प फ ब भ : च छ ज झ ञ

Dove Nelson

Chlorine in the
plates

च ब ज क अ ट ठ ड ढ णः त थ द ध न
र क ङ ? १५ ६० ? ठ ण र थ द ध क

प फ ब भ म य र ल व व श ष स झ ह
य ? व रु म य र ल व ? श ष स झ ह

long reaction with $\frac{1}{2} \text{H}_2$ and H_2O

२ प्रप्रितीमापुत्रसविवाहधामद॥हापुत्रशिवकमालक

Printed by S. Sauer & Co.

Capt^y M. K. Bates, Del. & L. 1842

Seistan, and for three months of the year only, the cold months (16), can life in it be said to be enjoyed.(17)

Note on the Map.

Any merits, which the map may be judged to possess, should be attributed to Sergeant Cameron, who surveyed the whole route, except that part of it which lies between Seistan and Killah Beest, for the errors of which I alone am responsible.(18)

The survey has been made only with the compass, but a flat country, with hills interspersed at long intervals is so easily laid down, we had so many well determined points d'appui, and our numerous bearings answered so perfectly, that I feel confident of there being no error of consequence in the portion of the map over which our route lay.

From Gerishke to Herat the route has been taken from Capt. Lander's survey.

The villages in the valley of Furrah are placed from native information. During our stay in that valley there was a thick haze which prevented the taking of a bearing.

The determining what shape to give to the Hamoon, which has a different shape every month of the year, was a point of much doubt and difficulty; the one adopted is that we believe the lake to assume in June, when the water retires from overflowing the surrounding country to its more natural and proper bed. Under these circumstances all that can be hoped for, or expected, is an approximation to the truth, but the only part

16 The cold weather is very pleasant, and similar to that of the north-west of Hindoostan. Snow has been known to fall in Seistan, but it is a rare and remarkable occurrence. Snow lies for five or six days during the winter at Herat. Its boundary is said to be the height of Shah Bed, but it not unfrequently snows at Hilzawar. About two years ago an army from Candahar invaded Herat; while it was encamped at Jaja a fall of snow surprised them, which was so severe that they lost several hundred horses.

17 In apology for the many omissions of this imperfect paper, I may mention that it is only a part of a more comprehensive memoir, which I am drawing up on the subject of Seistan.

18 The untimely end of Sergeant Cameron has been already made public. This man, the son of a respectable builder of Perth, after his return from Seistan accompanied me in a journey through some before unexplored parts of the Eusafzye country. I cannot speak too highly of his zeal for science, industry, ready talents, and gentlemanly deportment. His health failed him in Seistan, from whence to the Helmund, we were obliged to have him carried on a bed. Afterwards he rallied again, but his disease, consumption, was latterly gaining upon him, and I do not think that under any circumstances, he could have lived many months longer. As he was too weak to travel except slowly, I left him at Peshawar to follow at his leisure, and myself went on in advance with a few horsemen to Jelalabad. He had a strong guard with him, and had nearly reached the end of the Khyher pass. Unsuspicious of danger, he had dropped a little in rear of his party, when on a sudden he found himself surrounded by sixty men, while sixty others appeared on the hill above him. Seeing that resistance was hopeless, he dismounted, and drawing his sword, presented it to the nearest of the robbers. Just at that moment a stone struck him on the head and knocked him down; the ruffians in their blind fury rushed on him, and cut him to pieces with their knives.

of the Hamoon regarding which I do not feel satisfied, is to the south, where we have fewer opportunities of checking our information.

It is a source of much regret that we did not visit Zirreh; ignorant of the geography of the country, we were not aware of our having travelled away from it, till it was too late to repair the error; and as that part of Seistan is now uninhabited and rarely visited, it was difficult to get any satisfactory account of its present condition.

Of all the places inserted in the map which did not come under our personal observation, the relative positions alone can be depended on. The distances from one spot to another are in many instances doubtful, if not conjectural.

Proceedings of the Asiatic Society.

(Wednesday Evening, 7th October, 1840.)

The Honorable Sir E. RYAN, President, in the Chair.

The following gentlemen proposed at the last Meeting, were elected Members of the Society:—

M. P. EDGEWORTH, Esq.

Capt. W. LOVEDAY, ditto.

Capt. T. HUTTON, 37th Regt. N. I.

Dr. J. D. D. HÆBERLIN.

Library and Museum.

The following Books, &c. were presented:—

Lardner's Cabinet Cyclopædia; History of Denmark, Sweden, and Norway, vol. 3.

Edinburgh New Philosophical Journal, by Professor Jameson, 1840, No. 56.

London and Edinburgh Philosophical Magazine and Journal of Science, No. 104, May 1840, London, 3d Series.

Yarrell's History of British Birds, London, May 1840, 18.

Oriental Christian Spectator, August 1840, 2nd Series, vol. 1st, No. 8th.

Journal des Savans, Janvier, Fevrier, Mars. 1840, Paris.

Bulletin de la Societe' de Geographic, Paris, 1839, 2nd Series, Tome 12, 8vo.

Christian Observer, new Series, vol. 1st, No. 10.

Journal Asiatic Society of Bengal, New Series, vol. 9th, No. 17.

Sketch of the Country between Kurrachee and the Aghar River, MSS.

Sketch shewing the situation of the Coals found in the Tenasserim Provinces.

Sree Vhagavat (Purana) in Deva Nagari, 4to.

Corrected Copy in Deva Nagari Character from the original in the Journal.

Four Pooties in Sanscrit.

A tin box of forged Seals presented by A. GRANT, Esq. Collector of Delhi, forwarded by H. M. ELLIOT, Esq.

Catalogue of the Birds of the Peninsula of India, by T. C. JERDON, Madras, 1839.

Rapport fait a L'Academie Royale des Inscriptions et Belles Lettres (Institut de France) au subject du pied Romain, Juin 1835.

A Code of Laws extracted for the Armenians of the province of Ararat in Armenia, in Armenian, presented by J. AYDALL, Esq.

Annals of Natural History, or Magazine of Zoology, Botany, and Geology, No. 31, June 1840.

Vishnu Purana, translated by H. H. WILSON, London, 1840, 4to.

Les Sultans Mamlouks de Makrizi traduction de M. Quatremere. Paris 1840, Tome 1st. Liv. 2nd, 4to.

Museum.

Skeleton of an Ostrich, presented by the Honorable Sir JASPER NICOLLS, prepared in the Museum.

Ditto of a Vulture, purchased, and prepared in ditto.

Specimens of Sponge, presented by Col. D. MACLEOD.

Several impressions of Seals.

The following Works were presented.

Memoir on the length of an ancient Standard measure of the Roman foot, discovered at Candabie, in Normandy.

Notices, of the Galla Tribe at Limmon, on the frontier of Abyssinia, also presented to the Society by M. JOMARD, President of the Royal Geographical Society at Paris, and Member of the French Institute, were forwarded by Major T. B. JERVIS, of the Bombay Engineers. That officer in forwarding them, writes—"Which gives me an occasion of offering a few words on the importance to British interest of securing the good will of a people situated so favourably for throwing in supplies in any case of emergency into Aden, and the facilities the country affords of providing suitable cattle (a large and powerful description of mules) at a very reasonable rate, for the Horse Artillery of India.

"I cannot but express my surprise, that so little concern has been given to the country which several foreign powers are striving by any means, and no doubt with other than mere commercial views, to preoccupy.—The French Government, as may be judged from this little notice, have long had their eye on it; and since that period Messrs. D'ABBADIE, freres, have been deputed to explore its resources, and are now in or about the neighbouring coast. Messrs. ISENBERG and KRAFFT, Germans of the London Missionary Society, have their residence in Abyssinia, and a Mr. AYRSTON is also exploring the country on his own, or what account I know not. It would be well to occupy it by some moderate, able person in the capacity of British Agent, were it only for the purpose of protecting a lucrative trade that might be carried on by British subjects, and which is now altogether in American hands; while it would serve as a general sort of watch tower to keep an eye on the iniquitous traffic in slaves from Zanguebar, Mozambique, and Madagascar, with the shores of Arabia and Egypt. Moohummud Alea, who draws thence the larger portion of the slaves sold in the markets of Cairo and Alexandria, was not insensible to the political importance of the Galla country, and the shores to the east of it."

A memorandum of assets was submitted by the Officiating Secretary, as prepared by Mr. W. H. BOLST, Assistant and Accountant, shewing at credit of the Society in the Bank of Bengal, Rs. 3,916

Outstanding bills to the 2nd quarter of 1840 for contributions from members, Rs. 5,096

Doubtful—Parties being absent in England, &c. 1,168 ———

Irrecoverable—Parties being dead, 304 1,472

Rs. 3,624

Add contributions for the 3rd. quarter of 1840, just due and realizable,
about, .. Rs. 2,400

In course of realization, Rs. 6,024

Read the following letter and list of land and fresh water shells for the East India Company's Museum, by Dr. J. T. PEARSON.

To the Officiating Secretary to the Asiatic Society.

"SIR,—Having seen in the Journal of the Asiatic Society, an extract of a letter from Dr. HORSFIELD, in which he states that the Museum of the E. I. Company contains but few specimens of the Zoology of the continent of India; I have the honour to request you will obtain for me the favour of the Society transmitting to that gentleman, the accompanying fifty species of the land and fresh water shells of this country; to be presented on my part to the above mentioned Museum.

"I am induced to prefer this request, from the bad fortune which has hitherto attended my private efforts to send specimens to England; having had no news of not less than three consignments to the late Secretary to the Zoological Society, Mr. Bennett (in his private capacity, however,) to Mr. Swainson, and to Dr. Traill, from which circumstance I am induced to think they were not delivered.

"Accompanying the specimens is a list, with such remarks of their locality, &c., as I thought might be useful.

"As the specimens are for the most part fragile, you will oblige me by taking great care in handling them, should they be inspected by the Society. I must also add, in excuse for the few specimens of each species, that I lost a considerable portion of my collection; but hope to be able hereafter to forward a greater number.

"If the Society will allow me, I propose to forward through them, a series of specimens of the other branches of the Zoology of these mountains to the E. I. Company's Museum, as I have opportunity for collecting them. I have, &c. &c.

J. T. PEARSON.

List of land and fresh water shells for the E. I. Company's Museum, from Assistant Surgeon J. T. PEARSON.—Darjeeling, 10th April, 1840.

1.—*Unio bilinearis*—BENSON.—Found in a tank on the Esplanade of Fort William.

2.—*Unio favidens*—BENSON.—Found in running streams, and common in most rivulets in India.

3.—*Unio maigmalis*.——Common in tanks of stagnant water, and less so in rivulets.

4.—*Cyclostoma involvalus*.—SOVERLY.—Common in the Rajmahal hills, and at Midnapore.

5.—*Cyclostoma involvalus*.—SOVERLY.—Found at Cherra Poonjee, and in the Darjeeling district of the Himalya mountains. At Darjeeling it is of the smaller size, but lower down, at an elevation of not more than 2,500 to 4,000 feet, they are much larger—as large again as those sent; but I have not a good specimen of this large variety. Mr. Benson is of opinion this species is the same as No. 4.

6.—*Cyclostoma* ——— Found also at Darjeeling, but not very common.

7.—*Pterocyclos hispidum* peaugo.—From the Garrow Hills. I described this and the following shell in the Journal of the Asiatic Society for November 1833, under the name of *Spiraculum hispidum*; a generic name, which out of deference to Mr. Benson's authority as a conchologist (independent of his prior claim) I think it right to withdraw.

8.—*Pterocyclos parvus*.—PEARSON.—Locality as the last species.

9.—*Pterocyclos rupestris*.—BENSON.—Found in the Rajhmahl hills. The first species of the genus discovered by Mr. Benson.

10.—*Helix* ——— Found at Darjeeling. The only live specimen I have yet met with.

11.—*Melania variabilis*.—BENSON.—Found in Tolly's Nullah, near Calcutta. It was also in the Sylhet and Cherra Poonjee collection, which I purchased jointly with the Asiatic Society.

12.—*Melania stephanus*.—BENSON.—In the above mentioned collection.

13.—*Melania zonata*.—BENSON.—In the above collection.

14.—*Melania coricca*?—GRAY.—ditto, ditto.

15.—*Melania* ——— Found in tanks and rivulets of Bengal.

16.—*Melania* ditto, ditto, ditto.

17.—*Melania* ditto, ditto, ditto.

18.—*Melania* ditto, ditto, ditto.

19.—*Paludina bengalensis*. ditto, ditto.

20.—*Paludina crassa*.—Inhabits the rivers &c. of India.

21.—*Paludina pulchella*.—From the Sylhet collection.

22.—*Paludina* ——— ditto, ditto, ditto.

23.—*Lymnæa* ——— I discovered this species in a tank on the road from Howrah to Bishop's College, near Calcutta.

24.—*Lymnæa* ——— Common in stagnant waters all over India.

25.—*Planorbis indicus*.—ditto, ditto, ditto.

26.—*Vitina gigus*. ——— From the Sylhet collection.

27.—*Helix* ——— Bengal.

28.—*Helix* ——— From the Sylhet collection.

29.—*Helix* ——— ditto, ditto, ditto.

30.—*Helix* ditto, ditto, ditto.

31.—*Helix* ditto, ditto, ditto.

32.—*Helix* ditto, ditto, ditto.

33.—*Neritina depressa*.—BENSON.—Found on the piles on the banks of the river Hoogly at Calcutta.

34.—*Neritina tigrina*.—BENSON.—Locality as the last species.

35.—*Neritina* ——— I am not sure that this species is described. I found it adhering to stones, at low water, in Tolly's Nullah.

36.—*Assaminia fuscata*?—Common on the banks of the Hoogly.

37.—*Nematura*?—Found in the aqueduct leading from the Hoogly to the Course, Calcutta.

38.—*Scarabus triangularis*.—BENSON.—On the banks of the Hoogly at Calcutta.

39.—*Clausilia loxastonia*.—BENSON.

40.—Pupa————Found in advance in the sands on the banks of the Ganges near the mouth of the Goorutee, but I did not meet with a single live specimen. They appear to have been washed down and cast among the weeds, &c.

41.—*Bulminus*. ————— Found at Darjeeling.

42.—*Achatinia*. ————— Common in Bengal. I regret I have not a better specimen than the one sent.

43.—*Navicella compressa*.—BENSON.—Found on the piles on the banks of the Hoogly near Calcutta. I have but one specimen left, which will account for the injured state of that sent.

44.—*Navicella tessellata*.—LEMARCK.—Locality as the last.

45.—*Cerithissa sulcatum*.—LEMARCK.—Estuaries of the rivers of Bengal.

46.—*Cerithissa* ————— ditto, ditto, ditto.

47.—*Cerithissa* ————— ditto, ditto, ditto.

48.————— Found in the aqueduct mentioned under 37.

49.—*Modiola* ————— Found in Tolly's Nullah, adhering to stones, &c., by a string byssus. I think it a new and undescribed species.

50.————— Found in the sands of the Ganges, &c. Besides the above, a bottle containing the shells with the animals of *Cyclostoma incrolubus*, *Heritina depressa*, and *Tigrina* and *Pteroclos rupestris*.

Read a letter from J. H. BATTEN, Esq. of the C. S. enclosing one from Captain HUDDLESTONE, giving copies of an apparent inscription engraved on a Chobootra at Dewulghur in Ghurrawul, with a drawing of the Chobootra. Dewulghur is situated about 10 miles east from Sreenuggur, at some height above the valley of the Ulluknunder river, and possesses a rather handsome temple and establishment. Next to the showy shrines of Buddinath, Kedranath, &c. Dewulghur, is the chief religious establishment in Ghurrawul.

The character of this inscription, which is represented by Captain HUDDLESTONE as extending throughout the whole of the Chobootra, and the carving is said to be exceedingly elaborate, appears to be a *Toghra* in the Sanscrit character, but none of the Pundits to whom it has been shewn, nor Mr. CSOMA DE KOROSI have as yet succeeded in decyphering any portion of it. The character would appear to be unique, and should the specimen now furnished continue to baffle our attempts at its interpretations the Officiating Secretary proposes to publish a facsimile of it, and invite the attention of the readers of the Journal to a consideration of this curious variety of character.

Read a letter from Dr. CHAPMAN, H. M's. 16th Lancers, on the subject of the reading to be adopted on the legend of the so-called Demetrius Mayes' Coins. The Officiating Secretary expressed his regret at not having been able to publish some very interesting speculations by Dr. CHAPMAN on Bactrian numismatics, in consequence of his unfortunately not having it in his power to procure accurate and creditable lithographs of the casts of coins which accompanied that gentleman's paper. The same impediment had prevented him from publishing a collection of gems by the same contributor; but he trusted to be able very shortly to overcome this difficulty.

Read a letter from Captain T. S. BURT, of Engineers, of which the following is an extract :—

“ On the third page I have the pleasure to send you some information which the Rev. Mr. PRATT has kindly favored me with; by noticing the existence of the pillar in your Journal, it may be discovered and an old character on it besides, for I should doubt any one having dug down to its base, buried as it is 21 feet below ground, notwithstanding what the Oriental Repository says on the subject. I brought to notice a pillar at Patna *with* some antique writing upon it in the March number of the Journal Vol. III. for 1834, but I cannot think it means this one. Sir Charles WILKINS found one some where in the neighbourhood of Patna also, and translated the inscription found upon it in, *I think*, the 1st Vol. A. R. but as well as I recollect, that was at Buddal not Singea.

“ *Extract from Oriental Repository, Vol. 2, 1808.*

“ The plate of an *ancient column near Singea in Bahar*, was obligingly communicated by Mr. THOMAS COLLINSON. In the letter dated 15th February 1793, he says— This singular column is situated on the site of an obscure village in the neighbourhood of Singea in the province of Bahar, of which no traces whatever with respect to its establishment are to be derived either from oral tradition or the existing legends of former times; nor is there any inscription discoverable on any part of the column, though it has been carefully examined many feet below the surface of the earth.

“ Note.—Some foolish travellers have cut their names upon it, but it is to be hoped this impertinence will be soon effaced from the column, and I would not let the copper plate be a record of their folly. The whole of the shaft is said to be one entire piece. It is of greyish stones or marble (?) The *lion* on the capital is of the same material, but what renders the subject still more extraordinary, is, that there is not a stone to be found within 150 miles of the spot, or such an animal as the one described within the circle of our dominions—consequently, but little known to the natives. The sculptural decorations bear no similitude to the works either of the Hindoo, or Musulman artists.

“ *Dimensions.*

							ft. in.
Shaft, an entire stone, .. .. .	..	..	..	..	..	..	44 0
Ditto sunk, .. .. .	..	..	..	..	..	..	21 0
Ditto above ground, .. .. .	..	..	..	..	..	..	23 0
Diameter at ground, .. .. .	..	..	..	..	..	..	4 1
Ditto under capital, .. .. .	..	..	..	..	..	..	3 5
Height of capital without the lion, .. .. .	..	..	..	..	..	..	3 0
Table on which the lion sits, .. .. .	..	..	..	..	..	..	0 10
Ditto long, .. .. .	..	..	..	..	..	..	4 6
Ditto broad, .. .. .	..	..	..	..	..	..	3 10
Height of lion from paw to ear, .. .. .	..	..	..	..	..	..	5 4

“ Lion and Capital one stone,

(“ 1792. Signed) D. C.”

It was suggested that early occasion should be taken to invite research upon the interesting subject mentioned by Captain BURT.

Read a letter from Dr. H. FALCONER, with impressions of gems from Affghanistan.

Read a letter from J. AYDALL, Esq. forwarding a Memoir of Mechitharghosh, the Armenian Legislator for the Journal of the Asiatic Society.

Read a letter from Captain T. P. CAUTLEY, forwarding a Memorandum on the Fossil Camelidæ of the Sewalik range. This paper was published in No. 102 of the Journal.

Read a letter from Captain F. MACGRATH, Commanding the Arracan Local Battalion to the address of the Secretary, apprizing him of his having dispatched to his address, to be disposed of as would appear most expedient, a fine specimen of that rare and curious animal, the Sand Hog of Arracan. This animal was taken in the hills above the Koladyne river (vide Dr. EVANS' Memoir Asiatic Society's Journal, August, 1838, No. 80.) Captain MACGRATH, gives the following account of the local name of the animal, and the habits of this specimen now supplied by him—

“The Mugs call this animal Quado Waitdoo, this interpreted signifies an animal between a pig and a dog, or more literally partaking of the character of both. I got this creature about two months since, when he had not a tooth, and was fed on milk with cotton; as he grew up he took to eating cooked fish and even meat, also getting under the Bungalow and groping for worms and insects. He used to run about the house quite tame, and has never been confined day or night; his courage is great, and indeed if it is not guarded against, he will be meeting his death in consequence, for he will attack a dog, who with one gripe would destroy him; in fact he has no fear.”

The Officiating Secretary informed the Meeting that he had taken upon himself to present the animal to the Menagerie at Barrackpore in the name of the Society, to whom he considered it had been virtually presented by Captain MACGRATH, and he had great satisfaction in stating that the animal had thrived exceedingly well where he was now placed, and that there was every reason to anticipate his attaining his full growth without accident.

It was proposed by the Honorable W. W. BIRD, and seconded by Dr. WALLICH, when the subject of the choice of a permanent Curator was agitated, that Mr. BLYTH, in whose favor Professor WILSON had furnished Sir E. RYAN with the highest testimonials, should be invited to this country for the purpose of assuming the permanent duties of the Office, and that in the mean time arrangements should be made for securing efficient supervision over the affairs of the Museum, by employment of a gentleman of due qualifications, whose services might be now available in Calcutta. In pursuance of this determination, arrangements were made subsequently to the Meeting by which the services of Mr. H. PIDDINGTON were secured as temporarily in charge of the Curatorship.

It was proposed by Sir E. RYAN that a Standard Barometer among the collection of Instruments belonging to the late Mr. JAMES Prinsep, his Cabinet of Minerals, his Comparative Barometer, and instrument for effecting correction of atmospheric changes, should be proposed to Government as proper to be purchased for the general purposes of science, and placed in the Society's Rooms for general reference by the public, and the Officiating Secretary was directed to address Government on the subject accordingly.

For the above presentations and contributions the thanks of the Society were accorded.

